



VCX™ Installation and Maintenance Guide

VCX™ V7000 IP Telephony Solution

System Release 7.0

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5,994,998; 6,140,911; 6,329,906; 6,496,105; 6,535,983; 6,483,203; 6,449,348; 6,212,195

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ABOUT THIS GUIDE

This section contains an overview of this guide, lists guide conventions, related documentation, and product compatibility.

This guide describes how to answer the questions in the installation scripts, which run when you first start any server in a 3Com® VCX™ V7000 Networked Telephony System. By providing the correct answers to the script questions, you configure the system for initial operation.

This guide is intended for equipment installers who have a thorough understanding of telecommunications, VoIP technology, Linux® operating systems, Oracle databases, networks, and system administrator privileges.



Release notes are issued with some products. If the information in the release notes differs from the information in this guide, follow the instructions in the release notes.

Conventions

This guide may contain notice, text, and screen capture conventions.

Notices [Table 1](#) lists notice icons used in this guide.

Table 1 Notice Icon Descriptions

Notice Type	Description
	Information that contains important features or instructions.
	Information that alerts you to potential loss of data or potential damage to an application, device, system, or network.
	Information that alerts you to potential personal injury.

Text [Table 2](#) lists text conventions used in this guide.

Table 2 Text Conventions

Convention	Description
Screen displays	This typeface represents information as it appears on the screen.
Syntax	<p>The word “syntax” means that you must evaluate the syntax provided and then supply the appropriate values for the placeholders that appear in angle brackets. Example:</p> <p>To enable RIPIP, use the following syntax:</p> <pre>SETDefault !<port> -RIPIP CONTrol = Listen</pre> <p>In this example, you must supply a port number for <port>.</p>
Commands	<p>The word “command” means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example:</p> <p>To remove the IP address, enter the following command:</p> <pre>SETDefault !0 -IP NETaddr = 0.0.0.0</pre>
The words “enter” and “type”	When you see the word “enter” in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says “type.”
Keyboard key names	<p>If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example:</p> <p>Press Ctrl+Alt+Del</p>
Words in <i>italics</i>	<p>Italics are used to:</p> <ul style="list-style-type: none">■ Emphasize a point.■ Denote a new term at the place where it is defined in the text.■ Identify menu names, menu commands, and software button names. Examples: <p>From the <i>Help</i> menu, select <i>Contents</i>.</p> <p>Click <i>OK</i>.</p>

Related Documentation

These 3Com documents contain additional information about the products in this release that are a part of or support the 3Com Convergence Applications Suite.

The following documents are a part of the VCX IP Telephony Module:

- *VCX Installation and Maintenance Guide*
- *VCX Administration Guide*

- *VCX Business Telephone Quick Reference Guide*
- *VCX Basic Telephone Quick Reference Guide*
- *VCX Telephone Guide*
- *VCX Security Guide*

The following documents are a part of the IP Messaging Module:

- *IP Messaging Suite Product Overview*
- *IP Messaging - 3Com Native Interface AT - A - GLANCE*
- *IP Messaging Suite User Guide - 3Com Native Interface*
- *IP Messaging - Traditional Interface AT - A - GLANCE*
- *IP Messaging Suite User Guide - Traditional Interface*
- *IP Messaging Suite Operations and System Administration Guide*
- *3Com E-Mail Reader Application ReadMe*
- *IP Messaging Intelligent Mirroring Guide*

The following documents are a part of the IP Conferencing Module:

- *IP Conferencing Module Administration Guide*
- *IP Conferencing User Module Guide*
- *Convergence Center Client User and Administration Guide*

The following documents provide information on products that support this release:

- *Enterprise Management Suite Getting Started Guide, Version 2.1*
- *Enterprise Management Suite Administration Guide, Version 2.1*
- *Enterprise Management Suite User Guide for the VCX IP Telephony Module*
- *VCX V7111 Fast Track Installation Guide, Version 4.4*
- *VCX V7111 SIP Gateway User Manual, Version 4.4*
- *VCX V7122 SIP VoIP Gateway Installation Guide, Version 4.4*
- *VCX V7122 VoIP SIP Gateway User Manual, Version 4.4*
- *V6000 Branch Office Gateway Fast Track Installation Guide, Version 4.4*
- *V6000 Branch Office Gateway User Manual, Version 4.4*

Your Comments

Your suggestions are important to us because we want to make our documentation more useful to you.

Please send e-mail comments about this guide or any of the 3Com Voice Products documentation and Help systems to:

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Please include the following information with your comments:

- Document title
- Document part number (found on the front page)
- Page number
- Your name and organization (optional)

Example:

VCX Installation and Maintenance Guide
Part Number 900-XXXX-01 Rev AA
Page 25



Please address all questions regarding the 3Com software and hardware to your authorized 3Com representative.

1

PRE-INSTALLATION GUIDELINES

This chapter provides these pre-installation guidelines for the 3Com® VCX™ V7000 Networked Telephony Systems.

- [Software Configurations](#)
- [Hardware Configurations](#)
- [Tools](#)
- [License Keys](#)
- [Gathering Site Information](#)
- [Host Names](#)

Software Configurations The individual software services in any VCX system can be grouped in different ways to create the software configurations detailed in [Table 3](#):

Table 3 Software Configurations

Software Service	IP Telephony and Messaging Server	Call Processing Server	IP Telephony Server	IP Messaging Server	Authentication and Directory Server	Call Records Server
Call Processor	Yes	Yes	Yes			
	Yes	Yes	Yes			
	Yes					
	Yes	Yes	Yes			
	Yes	Yes	Yes			
	Yes	Yes	Yes	Yes	Yes	Yes
IP Messaging Services	Yes					
	Yes					

During installation, specific software services may or may not be enabled in a given software configuration. An example is the Call Records Service which is designed to run on a single hardware platform. In the three single office configurations, the Call Records Service is enabled on the Primary IP Telephony and Messaging or Primary IP Telephony server only.

Hardware Configurations

VCX V7000 systems can support single offices and multiple offices. Configurations can include regional and branch offices. To determine the number and type of servers you will need, contact your Voice Authorized 3Com Representative.



VCX systems require that each server in a regional office have both eth0 and eth1 configured. Branch office servers must have only eth0 configured. Single office systems are considered to be the same as regional offices for this purpose.



CAUTION: *For each regional server, both Network Interface Cards (NICs) must be connected to only one subnetwork. However, if you configure the primary regional server on one subnetwork, you can configure the associated secondary server on a different subnetwork.*



For regional servers, individual software services use either eth0 or eth1 as follows:

eth1	
IP Messaging	Call Processor
Common Agent	SIP Downloader
Authentication and Directory Server	Accounting Server
Provisioning Interface	

For branch servers, all software services use eth0.

Tools

All of the servers in VCX systems arrive from the factory configured to use the server's serial port as the console connection. No keyboard or mouse connections are enabled. To connect your PC to the VCX server, use a ["Serial Cables"](#) and run a ["Terminal Emulation Program"](#) on your PC.

Serial Cables

The null modem cable for IBM servers must have these characteristics:

- DB9 female connector on each end
- Sufficient length to reach from the PC to the VCX server

The serial cable for 3Com V6000 servers comes with the server. One end connects to the serial port (marked 1010) on the connection module located in the middle lower portion of the front panel.



CAUTION: Insert and remove the cable connector very gently when attaching the cable to the V6000 front panel. The connector is fragile and breaks easily.

Terminal Emulation Program

To configure a VCX server, you must run a terminal emulation program on your PC that is connected to the serial port on the VCX server. The program must be configured for the PC serial port you want to use (typically COM1 or COM2) and must have the parameters shown in [Table 4](#).

Table 4 Terminal Emulation Program Parameters

3Com V6000 Server	
VT100 emulation mode	VT100 emulation mode
9600 Baud	
	8 data bits
1 stop bit	1 stop bit
No parity	No parity
No flow control	No flow control

Host Names



When you configure the networking parameters of any VCX server, the script prompts you to assign a host name to the server.

A fully qualified hostname is one that includes the DNS domain name as the suffix (Example: vcx01.yourdomain.com). The hostname that you enter when configuring the VCX networking parameters is the unqualified hostname. In the vcx01.yourdomain.com example, the unqualified hostname is vcx01.

Use these rules when choosing an unqualified host name:

- **Maximum Length** — 11 characters
- **Allowed Characters** — Lower case letters, hyphens, and numbers
- **Restrictions**
 - A host name must contain at least one alphabetic character.
 - The first and last character in a host name cannot be a hyphen or a period.
 - Periods are allowed only to separate the fields in a fully qualified domain name.

Examples:

- **a-5** is a valid unqualified host name but **a-** and **-5** are not.
- **5** is not a valid unqualified host name. It does not contain at least one alphabetic character.
- **q** is a valid unqualified name.
- **aardvark4321** is too long by one character.
- **e.5** is not a valid unqualified host name. The period would indicate that the host name was e and that 5 was part or all of the domain name.

License Keys

For each server in a VCX configuration, you must obtain and install a license key. The key enables the use of devices such as telephones and functions such as voice mailboxes.



CAUTION: Before you begin the configuration of the VCX server, you must install a valid license key. If you do not install the license key, many software processes that are critical to the proper operation of the server cannot start.

Obtaining a License Key

Each license key is uniquely tied to one server through a machine ID.

To obtain the machine ID for any server, log in as root and enter this command:

```
vcx-showmachineid
```

Obtain, from your 3Com Voice Authorized Reseller, the license key that corresponds to the machine ID.

Installing a License Key

After you have obtained the license key, install it on the server by logging in as root and entering this command:

```
vcx-licenseinstall <license key>
```

These confirmation messages indicates that the license key has been successfully installed.

```
Activation Key Successfully Validated  
Success: Activation key validated and installed.
```

Backing Up License Key Files

3Com *strongly* recommends that users save copies of their license key files in a separate safe location. If any VCX server experiences a disk failure or any other problem that requires the VCX software to be reinstalled, the license key file will be available during that process.

Gathering Site Information

The VCX V7000 hardware servers communicate with each other using IP addresses. These addresses must be dedicated (static) and must be compatible with your network design.

The next sections describe the information you need to gather or decide for each of these systems.

Using DNS

3Com recommends that customers configure DNS servers so that they know the IP addresses and host names of all VCX servers and gateways.



3Com does not support NIS or WINS as domain name resolution methods for VCX products.

Single Office Configurations

VCX systems for single offices contain either two or four servers. Gather the following information before you start installing the VCX system.

Two Servers

You must dedicate *four* IP addresses, one for each NIC (2 per server)

Four Servers

You must dedicate *eight* IP addresses, one for each NIC (2 per server)

Gateways

You must *also* dedicate IP addresses for use by the gateways:

- Each analog gateway requires *one* IP address. There are two types of analog gateways. FXS gateways connect to analog telephones and fax machines. FXO gateways connect to analog telephone lines provided by the telephone company and enable the VCX system to make and receive telephone calls over analog lines.



The 3Com V6000 Branch Office Gateway contains both FXO and FXS analog gateways.

- Each digital gateway with 8 or fewer T1 spans requires *one* IP address. Digital gateways enable the VCX system to make and receive telephone calls over digital channels (T1).
- Each digital gateway with more than 8 T1 spans requires *two* IP addresses.

Other Network Information

You must know the appropriate subnetwork mask for each network segment on which you plan to install one or more of the servers.

You must know the IP address of the network gateway for each network segment.

- Worksheet** To make the configuration of your VCX system easier, you may want to have the necessary information in front of you before you begin to install and configure any server.
- Use [Table 5](#) for single sites
 - User [Table 6](#) for regional offices with no branch offices
 - Use [Table 7](#) for regional offices that have associated branch offices.
 - User [Table 8](#) for branch offices.

Table 5 Configuration Worksheet (Single Sites)

Configuration Parameter	Value for Your Site
Site ID	
Site Description	
Customer Name	
Primary VCX Server IP Address (eth0)	
Primary VCX Server IP Address (eth1)	
Primary VCX Server Host Name	
Secondary VCX Server IP Address (eth0)	
Secondary VCX Server IP Address (eth1)	
Secondary VCX Server Host Name	
Default Gateway IP Addresses	
Subnetwork Mask	
Primary Media Gateway	
Secondary Media Gateway	
Default Dialing Domain	1.1.1.1
Password for the root Account	
Password for the Oracle Account	
Password for the tomcat Account	
Password for the cworks Account	
Password for the vcx Account	
Password for the app Account	
Text to Speech Server #1 IP Address	
Text to Speech Server #2 IP Address	
Text to Speech Server #3 IP Address	
Text to Speech Server #4 IP Address	
Network Management PC 1	
Network Management PC 2	
Primary DNS Server IP Address	
Secondary DNS Server IP Address	
Tertiary DNS Server IP Address	
DNS Search Path	
Primary NTP Server IP Address	
Secondary NTP Server IP Address	
Continent	

Table 5 Configuration Worksheet (Single Sites) (continued)

Configuration Parameter	Value for Your Site
Country	
Time Zone	

Table 6 Configuration Worksheet (Regional Offices with no Branch Offices)

Configuration Parameter	Value for Your Site
Site ID	
Site Description	
Customer Name	
Primary VCX Server IP Address (eth0)	
Primary VCX Server IP Address (eth1)	
Primary VCX Server Host Name	
Secondary VCX Server IP Address (eth0)	
Secondary VCX Server IP Address (eth1)	
Secondary VCX Server Host Name	
Call Records Server IP Address (eth0)	
Call Records Server IP Address (eth1)	
Default Gateway IP Addresses	
Subnetwork Mask	
Primary Media Gateway	
Secondary Media Gateway	
Default Dialing Domain	1.1.1.1
Password for the root Account	
Password for the Oracle Account	
Password for the tomcat Account	
Password for the cworks Account	
Password for the vcx Account	
Password for the app Account	
Text to Speech Server #1 IP Address	
Text to Speech Server #2 IP Address	
Text to Speech Server #3 IP Address	
Text to Speech Server #4 IP Address	
Network Management PC 1	
Network Management PC 2	
Primary DNS Server IP Address	
Secondary DNS Server IP Address	
Tertiary DNS Server IP Address	
DNS Search Path	
Primary NTP Server IP Address	

Table 6 Configuration Worksheet (Regional Offices with no Branch Offices)

Configuration Parameter	Value for Your Site
Secondary NTP Server IP Address	
Continent	
Country	
Time Zone	

Table 7 Configuration Worksheet (Regional Offices with Branch Offices)

Configuration Parameter	Value for Your Region
Site ID	
Site Description	
Customer Name	
Default Gateway IP Addresses	
Subnetwork Mask	
Primary Media Gateway	
Secondary Media Gateway	
Primary Call Processing Server IP Address (eth0)	
Primary Call Processing Server IP Address (eth1)	
Primary Call Processing Server Host Name	
Secondary Call Processing Server IP Address (eth0)	
Secondary Call Processing Server IP Address (eth1)	
Secondary Call Processing Server Host Name	
Primary Authentication and Directory Server IP Address (eth0)	
Primary Authentication and Directory Server IP Address (eth1)	
Primary Authentication and Directory Server Host Name	
Secondary Authentication and Directory Server IP Address (eth0)	
Secondary Authentication and Directory Server IP Address (eth1)	
Secondary Authentication and Directory Server Host Name	
Primary IP Messaging Server IP Address (eth0)	
Primary IP Messaging Server IP Address (eth1)	
Primary IP Messaging Server Host Name	
Secondary IP Messaging Server IP Address (eth0)	
Secondary IP Messaging Server IP Address (eth1)	
Secondary IP Messaging Server Host Name	
IP Messaging Archive Server IP Address	
IP Messaging Archive Server Login ID	
IP Messaging Archive Server Login Password	
IP Messaging Archive Server Path (to archive location)	
IP Messaging Backup Server IP Address	
IP Messaging Backup Server Login ID	
IP Messaging Backup Server Login Password	
IP Messaging Backup Server Path (to backup directory)	

Table 7 Configuration Worksheet (Regional Offices with Branch Offices) (continued)

Configuration Parameter	Value for Your Region
Call Records Server IP Address (eth0)	
Call Records Server IP Address (eth1)	
Call Records Server Host Name	
Password for the root Account	
Password for the Oracle Account	
Password for the tomcat Account	
Password for the cworks Account	
Password for the vcx Account	
Password for the app Account	
Text to Speech Server #1 IP Address	
Text to Speech Server #2 IP Address	
Text to Speech Server #3 IP Address	
Text to Speech Server #4 IP Address	
Network Management PC 1	
Network Management PC 2	
Network Management PC 3	
Network Management PC 4	
Network Management PC 5	
Primary DNS Server IP Address	
Secondary DNS Server IP Address	
Tertiary DNS Server IP Address	
DNS Search Path	
Primary NTP Server IP Address	
Secondary NTP Server IP Address	
Continent	
Country	
Time Zone	

Table 8 Configuration Worksheet (Branch Offices)

Configuration Parameter	Value for Your Site
VCX Server Host Name	
VCX Server IP Address (eth0)	
Subnetwork Mask	
Default Gateway IP Address	
Primary DNS Server IP Address	
Secondary DNS Server IP Address	
Tertiary DNS Server IP Address	
DNS Search Path	
Primary NTP Server IP Address	
Secondary NTP Server IP Address	
Continent	
Country	
Time Zone	
Site ID	
Customer Name	
Default Dialing Domain	1.1.1.1
Secondary Call Processing Server IP Address (eth1)	
Secondary Authentication and Directory Server IP Address (eth0)	
Primary IP Messaging Server (eth0)	
Secondary IP Messaging Server (eth0)	
Primary Media Gateway	
Secondary Media Gateway	
IP Messaging Archive Server IP Address	
IP Messaging Archive Server Login ID	
IP Messaging Archive Server Login Password	
IP Messaging Archive Server Path (to archive location)	
IP Messaging Backup Server IP Address	
IP Messaging Backup Server Login ID	
User name for access to Authentication and Directory Server	
Password for access to Authentication and Directory Server	
Password for the root Account	
Password for the Oracle Account	
Password for the tomcat Account	

Table 8 Configuration Worksheet (Branch Offices) (continued)

Configuration Parameter	Value for Your Site
Password for the cworks Account	
Password for the vcx Account	
Password for the app Account	
Text to Speech Server #1 IP Address	
Text to Speech Server #2 IP Address	
Text to Speech Server #3 IP Address	
Text to Speech Server #4 IP Address	
Login Password for Access to Regional Office cworks account	
Network Management PC 1 IP Address	
Network Management PC 2 IP Address	
Network Management PC 3 IP Address	
Network Management PC 4 IP Address	
Network Management PC 5 IP Address	

2

INSTALLING AN IP TELEPHONY AND MESSAGING SERVER

Definition This chapter describes how to install a VCX IP Telephony and Messaging Server which runs these software services:

- Call Processor
- SIP Download
- Database
- Accounting
- Provisioning
- Common Agent
- IP Messaging
- Call Recording

Where Used An IP Telephony and Messaging Server is used wherever all VCX services are needed on a single server. To determine where this server can be used in your configuration, contact your Voice Authorized 3Com Representative.



CAUTION: Before you configure any server, you must first obtain and install a valid license key on that server. If you do not install the license, many software processes that are critical to the proper operation of the server cannot start.

Sample Configuration Scripts

At single sites and at multiple regional offices that have no associated branch offices, an IP Telephony and Messaging Server is configured as either the primary or secondary server in a two-server pair. Depending on the number of users that are to be supported by the server, the software is installed on a 3Com V6000, an IBM X306, or an IBM X346 machine.

At a branch office, an IP Telephony and Messaging Server is configured as a single server, running on an IBM X306 machine.

The sample configuration scripts in this chapter describe how to configure a server for each of these situations.

See these sections:

- [Configuring a Primary IP Telephony and Messaging Server](#)
- [Configuring a Secondary IP Telephony and Messaging Server](#)
- [Configuring a Branch Office IP Telephony and Messaging Server](#)

Configuring a Primary IP Telephony and Messaging Server

To begin the configuration process, enter this command:

vcx-setup

The configuration script starts. The first portion deals with network configuration.

Sample Network Configuration Script — Primary VCX Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 1](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Primary Server (continued)

```
----- Configuring IP Interface 'eth1' -----
```

```
Interface State          : enabled
```

Change the default value (disabled) to enabled.

```
IP Address               :
```

```
Network Subnet Mask     :
```

```
Default Gateway Address :
```

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

```
----- Configuring DNS Servers -----
```

```
Enter DNS servers one at a time.
```

```
When done, enter 0.0.0.0 to stop.
```

```
Primary DNS Server      :
```

```
Secondary DNS Server    :
```

```
Tertiary DNS Server     :
```

Enter up to three DNS server IP addresses.

```
----- Configuring DNS Search Path -----
```

```
Press Enter to leave the current path unchanged, or specify  
a new search path, with spaces separating each entry.
```

```
DNS Search Path :
```

Enter the DNS search path appropriate for this site.

```
----- Configuring Network Time Protocol -----
```

```
Enter NTP servers one at a time.
```

```
When done, enter 0.0.0.0 to stop.
```

```
Primary NTP Server      :
```

```
Secondary NTP Server     :
```

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

```
----- Configuring Time Zone -----
```

```
Please select a geographic location from the following list:
```

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia

Sample Network Configuration Script — Primary Server (continued)

```

6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

```

1. Antigua & Barbuda      18. Ecuador              35. Panama
2. Anguilla               19. Grenada              36. Peru
3. Netherlands Antilles  20. French Guiana       37. St Pierre & Miquelon
4. Argentina             21. Greenland           38. Puerto Rico
5. Aruba                 22. Guadeloupe          39. Paraguay
6. Barbados              23. Guatemala           40. Suriname
7. Bolivia               24. Guyana               41. El Salvador
8. Brazil                25. Honduras            42. Turks & Caicos Is
9. Bahamas              26. Haiti                43. Trinidad & Tobago
10. Belize               27. Jamaica              44. United States
11. Canada               28. St Kitts & Nevis    45. Uruguay
12. Chile                29. Cayman Islands      46. St Vincent
13. Colombia             30. St Lucia             47. Venezuela
14. Costa Rica           31. Martinique           48. Virgin Islands (UK)
15. Cuba                 32. Montserrat          49. Virgin Islands (US)
16. Dominica             33. Mexico
17. Dominican Republic  34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations

```

Sample Network Configuration Script — Primary Server (continued)

```

13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

Hostname:

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:
-----

```

Is all of the above information correct? [yes] :

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Primary Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Primary Server

----- Select System Configuration -----

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **1**

Enter 1 to configure this server for IP Telephony and Messaging Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Telephony and IP Messaging Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'IP Telephony and IP Messaging Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Primary Server (continued)

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This server runs IP Telephony and IP Messaging services.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Telephony & Messaging server.
- 2 - This is a regional office, secondary IP Telephony & Messaging server.
- 3 - This is a branch office IP Telephony & Messaging server.
- 4 - This server operates standalone.

Enter your choice by number [1] : **1**

Enter 1 to configure this server as the primary server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The site name provides a user-friendly description of a location in a multi-site VCX installation. This may be used to identify a site in certain management interfaces. The site name may be up to 255 characters long and can contain letters, numbers, spaces, underscores, dashes, and colons.

Sample Services Configuration Script — Primary Server (continued)

Enter a description for this site :

Enter a site description of your choice.

The Customer Name identifies the company using this VCX system.

Enter the customer name :

Enter the name of your company.

Some VCX applications can use European date ordering. Answer 'Y' here to enable this.

Use European date order? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). If you want to display dates using the European order, enter Y.

In a regional office, IP Messaging can be used in two ways. In a Global Messaging configuration, the regional IP Messaging servers are used by the entire organization including branch offices. In a Local Messaging configuration, the regional IP Messaging servers are used only by the regional office, and branches have their own IP Messaging systems. NOTE: A regional office that has no branch offices uses Local Messaging.

Is Global Messaging in use? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). Single offices with two servers and regional offices with no branch offices are configured for Local IP Messaging. That is, all users obtain IP Messaging services from the local IP Messaging Servers.

The SIP default dialing domain is used to construct the SIP URI for outbound SIP requests.

Enter the SIP default dialing domain : 1.1.1.1

You must use the same dialing domain for all servers in a VCX system. 3Com recommends the use of 1.1.1.1 as the dialing domain.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary VCX Server.

Sample Services Configuration Script — Primary Server (continued)

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary VCX Server.

The secondary IP Messaging Service is a backup for voice mail and other messaging services.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary VCX Server.

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the primary way of connecting to the Public Switched Telephone Network (PSTN).

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the secondary way of connecting to the Public Switched Telephone Network (PSTN).

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Sample Services Configuration Script — Primary Server (continued)

Enable the Call Records Service (Y/N)? [N] :

In order to generate call history reports or billing records, the VCX system must collect and save call records. These records are then used by a program such as Call Data Reporting (CDR) to generate reports. The Call Records Service gathers the records.

- *If this server is the primary server at a single site, enter Y to enable the Call Records service.*
- *If this server is the primary server at a regional office with no branch offices, press the Enter or Return key to accept the default answer (N).*

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```

Site Identifier :
Site Name :
Customer Name :
European Date Order :
Global Messaging In Use :
SIP Default Dialing Domain :
Secondary Call Processor :
Secondary Auth & Dir Service :
Secondary IP Messaging Service :
Primary Media Gateway :
Secondary Media Gateway :
Enable Call Records Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for System -----



CAUTION: *Next, the system prompts you to enter the passwords for the Root, Oracle, Tomcat, Cworks, VCX, and App accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.*

Root account password.A blank entry means 'no change'.

```

Password :
Password (confirm) :
```

Sample Services Configuration Script — Primary Server (continued)

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

App account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for IP Messaging Service -----

The hostname of the other IP Messaging system is needed in order to set up Intelligent Mirroring redundancy with this system.

```
Hostname of peer IP Messaging system      :
```

Enter the host name of the secondary server on which IP Messaging services run.

Sample Services Configuration Script — Primary Server (continued)

IP Messaging includes an optional ability to archive messages to an external server.

Is Message Archival enabled? [N] :

Press the Enter or Return key to accept the default answer (N). Message archiving provides a secure (sftp) way to archive a copy of each voicemail message that is created. You cannot restore messages to user voice mailboxes. If you answer Y to this question, the script prompts you to supply the following information about the archival server: IP address, a user name and login password for sftp access, and the name (path) of the directory into which messages will be placed.



If you choose to not enable message archiving, you cannot enable it later.

IP Messaging includes an optional ability to back up messages to an external server.

Enable data backup server for IPMS? [N] :

Press the Enter or Return key to accept the default answer (N). Data backup provides a secure (sftp) way to save a snapshot of all IP Messaging data currently stored on the VCX system. If you answer Y to this question, the script prompts you to supply the following information about the backup server: IP address, a user name and login password for sftp access, and the name of the directory into which the data will be placed.

IP Messaging includes an optional ability to import subscriber profiles from VCX.

Enable VCX subscriber bulk import? [Y] :

Press the Enter or Return key to accept the default answer (Y). Subscriber bulk import provides a way to import a large number of IP Messaging subscriber profiles at one time by creating a file that contains the subscriber information and then importing the file. If you answer Y to this question, the script prompts you to supply a user name and login password for the VCX Authentication and Directory Server.

For VCX subscriber bulk import, the user name to use when accessing the VCX Authentication & Directory Server is needed.

Sample Services Configuration Script — Primary Server (continued)

User name for access to Auth & Dir Server : cworks

The default user name for logging in to the Authentication and Directory Server is cworks.

In addition, the password for the previously provided user name is required. Specify the password to use when accessing the VCX Authentication & Directory Server.

Password for access to Auth & Dir Server : cworks

3Com strongly recommends that customers change default passwords for security reasons. The default password is cworks. Consult your VCX system administrator to determine the appropriate password to enter.

IP Messaging includes support for Text To Speech (TTS) via one or more external servers. To use this feature you must answer 'Y' here.

Is Text To Speech (TTS) enabled? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script prompts you for the IP address of up to four Text-to-Speech Servers. Each server is a PC running the Windows operating system. If you have entered IP addresses for all of your Text-to-Speech Servers, press the Enter or Return key for all remaining IP address prompts. If you enable Text-to-Speech, you must use the G711u CODEC (the default), not the G729a CODEC.

Do you wish to change any of the IP Messaging Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

Login Password : *****

Login Password (confirm) : *****

Previously, the script prompted you to change the login password for the cworks account. If you changed the password, use the new one. Otherwise, use the default password.

Sample Services Configuration Script — Primary Server (continued)

VCX Authentication & Directory Services can provide support for System Speed Dials. This feature must be enabled only at a single site, and if replication is in use, the setting must be the same on the primary and secondary servers for that site.

Enable System Speed Dial Master? [N] :

- *At a single site, enter Y for the primary server and remember to answer Y when you configure the associated secondary server.*
- *For regional offices that have no branch offices, you must configure the two servers in one of the regional offices as System Speed Dial Master servers. Answer Y for only one pair of servers in one regional office.*

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: *Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.*

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Sample Services Configuration Script — Primary Server (continued)

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Sample Services Configuration Script — Primary Server (continued)

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Primary VCX Server

Configuring a Secondary IP Telephony and Messaging Server

To begin the configuration process, enter this command:

vcx-setup

The configuration script starts. The first portion deals with network configuration.

Sample Network Configuration Script — Secondary VCX Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 2](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Secondary Server (continued)

----- Configuring IP Interface 'eth1' -----

Interface State : enabled

Change the default value (disabled) to enabled.

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary NTP Server :

Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia

Sample Network Configuration Script — Secondary Server (continued)

```

6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

```

1. Antigua & Barbuda      18. Ecuador              35. Panama
2. Anguilla               19. Grenada              36. Peru
3. Netherlands Antilles  20. French Guiana       37. St Pierre & Miquelon
4. Argentina              21. Greenland           38. Puerto Rico
5. Aruba                  22. Guadeloupe          39. Paraguay
6. Barbados               23. Guatemala           40. Suriname
7. Bolivia                24. Guyana              41. El Salvador
8. Brazil                 25. Honduras            42. Turks & Caicos Is
9. Bahamas                26. Haiti               43. Trinidad & Tobago
10. Belize                 27. Jamaica             44. United States
11. Canada                 28. St Kitts & Nevis    45. Uruguay
12. Chile                  29. Cayman Islands      46. St Vincent
13. Colombia              30. St Lucia            47. Venezuela
14. Costa Rica            31. Martinique          48. Virgin Islands (UK)
15. Cuba                  32. Montserrat          49. Virgin Islands (US)
16. Dominica              33. Mexico
17. Dominican Republic   34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations

```


Sample Network Configuration Script — Secondary Server (continued)

```

13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

```

Hostname:

```

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

```

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

-----

```

Is all of the above information correct? [yes] :

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Secondary Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Secondary Server

```
----- Select System Configuration -----
```

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **1**

Enter 1 to configure this server for IP Telephony and Messaging Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Telephony and IP Messaging Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'IP Telephony and IP Messaging Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Secondary Server (continued)

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This server runs IP Telephony and IP Messaging services.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Telephony & Messaging server.
- 2 - This is a regional office, secondary IP Telephony & Messaging server.
- 3 - This is a branch office IP Telephony & Messaging server.
- 4 - This server operates standalone.

Enter your choice by number [1] : **2**

Enter 2 to configure this server as the secondary server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The site name provides a user-friendly description of a location in a multi-site VCX installation. This may be used to identify a site in certain management interfaces. The site name may be up to 255 characters long and can contain letters, numbers, spaces, underscores, dashes, and colons.

Sample Services Configuration Script — Secondary Server (continued)

Enter a description for this site :

Enter a site description of your choice.

The Customer Name identifies the company using this VCX system.

Enter the customer name :

Enter the name of your company.

Some VCX applications can use European date ordering. Answer 'Y' here to enable this.

Use European date order? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). If you want to display dates using the European order, enter Y.

In a regional office, IP Messaging can be used in two ways. In a Global Messaging configuration, the regional IP Messaging servers are used by the entire organization including branch offices. In a Local Messaging configuration, the regional IP Messaging servers are used only by the regional office, and branches have their own IP Messaging systems. NOTE: A regional office that has no branch offices uses Local Messaging.

Is Global Messaging in use? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). Single offices with two servers and regional offices with no branch offices are configured for Local IP Messaging. That is, all users obtain IP Messaging services from the local IP Messaging Servers.

The SIP default dialing domain is used to construct the SIP URI for outbound SIP requests.

Enter the SIP default dialing domain : 1.1.1.1

You must use the same dialing domain for all servers in a VCX system. 3Com recommends the use of 1.1.1.1 as the dialing domain.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary VCX Server.

Sample Services Configuration Script — Secondary Server (continued)

The primary Authentication & Directory Service is principally responsible for performing authentication, authorization, and certain user-specific functions

IP address of the primary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary VCX Server.

The primary IP Messaging Service provides voice mail and other messaging services for the system.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary VCX Server.

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the primary way of connecting to the Public Switched Telephone Network (PSTN).

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the secondary way of connecting to the Public Switched Telephone Network (PSTN).

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Sample Services Configuration Script — Secondary Server (continued)

Enable the Call Records Service (Y/N)? [N] :

At a single site and at a regional office that has no associated branch offices, the Call Records Service is enabled only on a primary server. Press the Enter or Return key to accept the default answer (N).

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```

Site Identifier :
  Site Name :
    Customer Name :
      European Date Order :
        Global Messaging In Use :
          SIP Default Dialing Domain :
            Primary Call Processor :
              Primary Auth & Dir Service :
                Primary IP Messaging Service :
                  Primary Media Gateway :
                    Secondary Media Gateway :
                      Enable Call Records Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for System -----



CAUTION: Next, the system prompts you to enter the passwords for the Root, Oracle, Tomcat, Cworks, VCX, and App accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

```

Password :
Password (confirm) :
```

Oracle account password. A blank entry means 'no change'.

```

Password :
Password (confirm) :
```

Sample Services Configuration Script — Secondary Server (continued)

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

App account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for IP Messaging Service -----

The hostname of the other IP Messaging system is needed in order to set up Intelligent Mirroring redundancy with this system.

```
Hostname of peer IP Messaging system          :
```

Enter the host name of the primary server on which IP Messaging services run.

Sample Services Configuration Script — Secondary Server (continued)

IP Messaging includes an optional ability to archive messages to an external server.

Is Message Archival enabled? [N] :

Press the Enter or Return key to accept the default answer (N). Message archiving provides a secure (sftp) way to archive a copy of each voicemail message that is created. You cannot restore messages to user voice mailboxes. If you answer Y to this question, the script prompts you to supply the following information about the archival server: IP address, a user name and login password for sftp access, and the name (path) of the directory into which messages will be placed.



If you choose to not enable message archiving, you cannot enable it later.

IP Messaging includes an optional ability to back up messages to an external server.

Enable data backup server for IPMS? [N] :

Press the Enter or Return key to accept the default answer (N). Data backup provides a secure (sftp) way to save a snapshot of all IP Messaging data currently stored on the VCX system. If you answer Y to this question, the script prompts you to supply the following information about the backup server: IP address, a user name and login password for sftp access, and the name of the directory into which the data will be placed.

IP Messaging includes an optional ability to import subscriber profiles from VCX.

Enable VCX subscriber bulk import? [Y] :

Press the Enter or Return key to accept the default answer (Y). Subscriber bulk import provides a way to import a large number of IP Messaging subscriber profiles at one time by creating a file that contains the subscriber information and then importing the file. If you answer Y to this question, the script prompts you to supply a user name and login password for the VCX Authentication and Directory Server.

For VCX subscriber bulk import, the user name to use when accessing the VCX Authentication & Directory Server is needed.

User name for access to Auth & Dir Server : cworks

The default user name for logging in to the Authentication and Directory Server is cworks.

Sample Services Configuration Script — Secondary Server (continued)

In addition, the password for the previously provided user name is required. Specify the password to use when accessing the VCX Authentication & Directory Server.

Password for access to Auth & Dir Server :

3Com strongly recommends that customers change default passwords for security reasons. The default password is cworks. Consult your VCX system administrator to determine the appropriate password to enter.

IP Messaging includes support for Text To Speech (TTS) via one or more external servers. To use this feature you must answer 'Y' here.

Is Text To Speech (TTS) enabled? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script prompts you for the IP address of up to four Text-to-Speech Servers. Each server is a PC running the Windows operating system. If you have entered IP addresses for all of your Text-to-Speech Servers, press the Enter or Return key for all remaining IP address prompts. If you enable Text-to-Speech, you must use the G711u CODEC (the default), not the G729a CODEC.

Do you wish to change any of the IP Messaging Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

Login Password : *****

Login Password (confirm) : *****

Previously, the script prompted you to change the login password for the cworks account. If you changed the password, use the new one. Otherwise, use the default password.

Sample Services Configuration Script — Secondary Server (continued)

VCX Authentication & Directory Services can provide support for System Speed Dials. This feature must be enabled only at a single site, and if replication is in use, the setting must be the same on the primary and secondary servers for that site.

Enable System Speed Dial Master? [N] :

- *At a single site, you should have entered Y for the primary server. You must also answer Y here, for the associated secondary server.*
- *For regional offices that have no branch offices, you must configure the two servers in one of the regional offices as System Speed Dial Master servers. Answer Y for only one pair of servers in one regional office.*

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: *Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.*

Sample Services Configuration Script — Secondary Server (continued)

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Sample Services Configuration Script — Secondary Server (continued)

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Secondary VCX Server

Configuring a Branch Office IP Telephony and Messaging Server

To begin the configuration process, enter this command:

vcx-setup

The configuration script starts. The first portion deals with network configuration.

Sample Network Configuration Script — Branch Office Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.
Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
VCX servers can use DHCP for automated configuration, but this requires
that the DHCP server is configured to provide the proper options. Unless
you know that your environment is set up in this way, you should say 'no'
here and configure static network parameters.
```

Use DHCP on eth0 to configure network parameters? [yes] : **no**

*IP addresses for VCX servers must be static addresses. Enter no to
configure the network parameters for eth0 manually.*

```
----- Configuring Hostname -----
Enter system hostname      :
```

*Enter the name that you want to use for this branch office server.
Unqualified host names must conform to the rules outlined in ["Host
Names"](#) in [Chapter 1](#).*

Sample Network Configuration Script — Branch Office Server (continued)

```
----- Configuring IP Interface 'eth0' -----
```

```
IP Address      :
Network Subnet Mask :
Default Gateway Address :
```

Enter an IP Address, Network Subnet Mask, and Default Gateway Address that are appropriate for this branch office.

```
----- Configuring IP Interface 'eth1' -----
```

```
Interface State : disabled
```

A branch office VCX server uses only the eth0 network interface. Press the Enter or Return key to accept the default answer (disabled).

```
----- Configuring DNS Servers -----
```

```
Enter DNS servers one at a time.
When done, enter 0.0.0.0 to stop.
```

```
Primary DNS Server      :
Secondary DNS Server    :
Tertiary DNS Server     :
```

Enter the IP addresses for up to three Domain Name Service (DNS) servers. The script interprets a 0.0.0.0 address as the end of the list.

```
----- Configuring DNS Search Path -----
```

```
Press Enter to leave the current path unchanged, or specify
a new search path, with spaces separating each entry.
```

```
DNS Search Path :
```

Enter the DNS search path appropriate for the domain for the branch office.

```
----- Configuring Network Time Protocol -----
```

```
Enter NTP servers one at a time.
When done, enter 0.0.0.0 to stop.
```

```
Primary NTP Server      :
Secondary NTP Server    :
```

Enter the IP addresses for up to two Network Time Protocol (NTP) servers. The script interprets a 0.0.0.0 address as the end of the list.



CAUTION: *If VCX systems are not synchronized via NTP, timing-related problems can occur.*

```
----- Configuring Time Zone -----
```

Sample Network Configuration Script — Branch Office Server (continued)

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia
6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean

Enter continent [2] :

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

- | | | |
|-------------------------|----------------------|--------------------------|
| 1. Antigua & Barbuda | 18. Ecuador | 35. Panama |
| 2. Anguilla | 19. Grenada | 36. Peru |
| 3. Netherlands Antilles | 20. French Guiana | 37. St Pierre & Miquelon |
| 4. Argentina | 21. Greenland | 38. Puerto Rico |
| 5. Aruba | 22. Guadeloupe | 39. Paraguay |
| 6. Barbados | 23. Guatemala | 40. Suriname |
| 7. Bolivia | 24. Guyana | 41. El Salvador |
| 8. Brazil | 25. Honduras | 42. Turks & Caicos Is |
| 9. Bahamas | 26. Haiti | 43. Trinidad & Tobago |
| 10. Belize | 27. Jamaica | 44. United States |
| 11. Canada | 28. St Kitts & Nevis | 45. Uruguay |
| 12. Chile | 29. Cayman Islands | 46. St Vincent |
| 13. Colombia | 30. St Lucia | 47. Venezuela |
| 14. Costa Rica | 31. Martinique | 48. Virgin Islands (UK) |
| 15. Cuba | 32. Montserrat | 49. Virgin Islands (US) |
| 16. Dominica | 33. Mexico | |
| 17. Dominican Republic | 34. Nicaragua | |

Enter country [44] :

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska

Sample Network Configuration Script — Branch Office Server (continued)

```

5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script confirms your time zone selection and then prints a summary of the configuration parameters that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

Hostname:

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1      (interface is disabled)

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:
-----

```


Sample Network Configuration Script — Branch Office Server (continued)

Is all of the above information correct? [yes] :

Review the information for accuracy and if it is correct, press the Enter or Return key. If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Branch Office Server

The script displays several status messages and prompts you to select the system configuration type for this server.

Sample Services Configuration Script — Branch Office Server

----- Select System Configuration -----

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) :

Enter 1 to configure this branch office server with IP Telephony and IP Messaging Services. The script asks you to confirm your choice and warns you that your choice cannot be changed after you confirm it.

You have chosen to configure this system to provide:

IP Telephony and IP Messaging Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Sample Services Configuration Script — Branch Office Server (continued)

Are you absolutely certain that you wish to configure this system as an 'IP Telephony and IP Messaging Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes and press the Enter or Return key to confirm your selection. If you want to change your selection, enter no.

Selection confirmed.

The script displays several configuration status messages and then begins the configuration of VCX services.

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the default answer (Y).

```
----- Configuring VCX Services -----
```

This server runs IP Telephony and IP Messaging services.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Telephony & Messaging server.
- 2 - This is a regional office, secondary IP Telephony & Messaging server.
- 3 - This is a branch office IP Telephony & Messaging server.
- 4 - This server operates standalone.

Enter your choice by number [1] :

Enter 3 to configure this server as a branch office server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

Sample Services Configuration Script — Branch Office Server (continued)

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter an identifier for the branch office in which this server will reside.

The Customer Name identifies the company using this VCX system.

Enter the customer name :

Enter the name of your company.

Some VCX applications can use European date ordering. Answer 'Y' here to enable this.

Use European date order? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). To use the European date order, enter Y.

The SIP default dialing domain is used to construct the SIP URI for outbound SIP requests.

Enter the SIP default dialing domain : 1.1.1.1

VCX systems require 1.1.1.1 as the default dialing domain. Press the Enter or Return key to accept the default value.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server in your VCX system.

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary Authentication and Directory Server in your VCX system.

Sample Services Configuration Script — Branch Office Server (continued)

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the primary way of connecting to the Public Switched Telephone Network (PSTN). In most configurations, the primary media gateway for a branch office is located on the same subnetwork as the branch office server.

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Enter the IP address of a secondary analog or digital media gateway if the branch office has one.

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Enable the Call Records Service (Y/N)? [N] :

VCX systems that contain both regional and branch offices have a Call Records Server, separate from all other servers, that gathers call record data from all other servers in the VCX system. Press the Enter or Return key to accept the default answer (N).

The script prints a summary of the global parameters that you have specified.

----- Summary of Global Parameters -----

```

Site Identifier :
Customer Name :
European Date Order :
SIP Default Dialing Domain :
Secondary Call Processor :
Secondary Auth & Dir Service :
Primary Media Gateway :
Secondary Media Gateway :
Enable Call Records Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change your selection, enter Y.

Sample Services Configuration Script — Branch Office Server (continued)

----- Configuring additional parameters for System -----



CAUTION: Next, the system prompts you to enter the passwords for the Root, Oracle, Tomcat, Cworks, VCX, and App accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

App account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the passwords, enter Y.

Sample Services Configuration Script — Branch Office Server (continued)

----- Configuring additional parameters for IP Messaging Service -----

IP Messaging includes an optional ability to archive messages to an external server.

Is Message Archival enabled? [N] :

Press the Enter or Return key to accept the default answer (N). Message archiving provides a secure (sftp) way to archive a copy of each voicemail message that is created. You cannot restore messages to user voice mailboxes. If you answer Y to this question, the script prompts you to supply the following information about the archival server: IP address, a user name and login password for sftp access, and the name (path) of the directory into which messages will be placed.



If you choose to not enable message archiving, you cannot enable it later.

IP Messaging includes an optional ability to back up messages to an external server.

Enable data backup server for IPMS? [N] :

Press the Enter or Return key to accept the default answer (N). Data backup provides a secure (sftp) way to save a snapshot of all IP Messaging data currently stored on the VCX system. If you answer Y to this question, the script prompts you to supply the following information about the backup server: IP address, a user name and login password for sftp access, and the name of the directory into which the data will be placed.

IP Messaging includes an optional ability to import subscriber profiles from VCX.

Enable VCX subscriber bulk import? [Y] :

Press the Enter or Return key to accept the default answer (Y). Subscriber bulk import provides a way to import a large number of IP Messaging subscriber profiles at one time by creating a file that contains the subscriber information and then importing the file. If you answer Y to this question, the script prompts you to supply a user name and login password for the VCX Authentication and Directory Server.

Sample Services Configuration Script — Branch Office Server (continued)

For VCX subscriber bulk import, the user name to use when accessing the VCX Authentication & Directory Server is needed.

User name for access to Auth & Dir Server :

Enter the user name that you defined earlier in this script. If you did not change the default user name, enter cworks.

In addition, the password for the previously provided user name is required. Specify the password to use when accessing the VCX Authentication & Directory Server.

Password for access to Auth & Dir Server :



CAUTION: *Enter the password that you defined earlier in this script. If you did not change the default value, enter cworks as the password. 3Com strongly recommends that customers change the default passwords for security reasons.*

IP Messaging includes support for Text To Speech (TTS) via one or more external servers. To use this feature you must answer 'Y' here.

Is Text To Speech (TTS) enabled? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script prompts you for the IP address of up to four Text-to-Speech Servers. Each server is a PC running the Windows operating system. If you have entered IP addresses for all of your Text-to-Speech Servers, press the Enter or Return key for all remaining IP address prompts. If you enable Text-to-Speech, you must use the G711u CODEC (the default), not the G729a CODEC.

Do you wish to change any of the IP Messaging Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Auth & Dir Service -----

Sample Services Configuration Script — Branch Office Server (continued)

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

```
Login Password :
Login Password (confirm) :
```



CAUTION: Enter the password for the cworks account on the regional office Authentication and Directory server. The default password is cworks. 3Com strongly recommends that customers change default passwords for security reasons. Consult your VCX system administrator to determine the appropriate password to enter.

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Review the information for accuracy and if it is correct, press the Enter or Return key. If you want to change any of the information, enter Y.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

```
Trap Destination :
```

Enter the IP address of the PC on which your network management software runs.

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

```
Trap Community String : public
```



CAUTION: Press the Enter or Return key to accept the default answer (public). If you want to specify a different trap community string, enter it instead. 3Com strongly recommends that customers change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

```
Write Community String : private
```



CAUTION: Press the Enter or Return key to accept the default answer (private). If you want to specify a different write community string, enter it instead. 3Com strongly recommends that customers change this string for security reasons.

Sample Services Configuration Script — Branch Office Server (continued)

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). If you want to specify a different read community string, enter it instead. 3Com strongly recommends that customers change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. If you answer Y, the script prompts you for the IP addresses of up to four authorized network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Review the information for accuracy and if it is correct, press the Enter or Return key. If you want to change any of the information, enter Y.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Sample Services Configuration Script — Branch Office Server (continued)

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Branch Office Server**Post-Installation
Steps**

After you install a branch office IP Telephony and Messaging system, you must define the branch office server as a trusted end point on the VCX Call Processing Server in the associated regional office. If the Call Processing service in the branch office fails, the IP Messaging software can still interact with the Call Processing Server in the regional office.

See [“Adding Trusted Endpoints”](#) in [Chapter 11](#) for instructions on how to add trusted end points.

3

INSTALLING AN IP TELEPHONY SERVER

Definition This chapter describes how to install a VCX IP Telephony Server which runs these services.

- Call Processor
- SIP Downloader
- Authentication and Directory Services
- Accounting Services
- Provisioning Services
- Common Agent
- Call Records Services (optional)

Where Used An IP Telephony Server is used wherever all VCX services except IP Messaging are required on a single server. To determine where this server can be used in your configuration, contact your Voice Authorized 3Com Representative.

Sample Configuration Scripts In either the single office or branch office situation, IP Telephony Servers are installed on IBM X346 machines. The sample configuration scripts in this chapter describes how to configure an IP Telephony Server in a single office (5,000 users) or a branch office.

See these sections:

- [Configuring a Primary IP Telephony Server \(Single Site\)](#)
- [Configuring a Secondary IP Telephony Server \(Single Site\)](#)
- [Configuring an IP Telephony Server at a Branch Office](#)

Configuring a Primary IP Telephony Server (Single Site)

To begin the configuration process, enter this command:

vcx-setup

The configuration script starts. The first portion deals with network configuration.

Sample Network Configuration Script — Primary IP Telephony Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 3](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Primary IP Telephony Server (continued)

----- Configuring IP Interface 'eth1' -----

Interface State : enabled

Change the default value (disabled) to enabled.

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary NTP Server :

Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia

Sample Network Configuration Script — Primary IP Telephony Server (continued)

```

6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

```

1. Antigua & Barbuda      18. Ecuador              35. Panama
2. Anguilla               19. Grenada              36. Peru
3. Netherlands Antilles  20. French Guiana       37. St Pierre & Miquelon
4. Argentina              21. Greenland           38. Puerto Rico
5. Aruba                  22. Guadeloupe          39. Paraguay
6. Barbados               23. Guatemala           40. Suriname
7. Bolivia                24. Guyana               41. El Salvador
8. Brazil                 25. Honduras            42. Turks & Caicos Is
9. Bahamas                26. Haiti                43. Trinidad & Tobago
10. Belize                27. Jamaica              44. United States
11. Canada                 28. St Kitts & Nevis     45. Uruguay
12. Chile                  29. Cayman Islands       46. St Vincent
13. Colombia               30. St Lucia             47. Venezuela
14. Costa Rica             31. Martinique           48. Virgin Islands (UK)
15. Cuba                   32. Montserrat           49. Virgin Islands (US)
16. Dominica               33. Mexico
17. Dominican Republic    34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations

```

Sample Network Configuration Script — Primary IP Telephony Server (continued)

```

13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

```

Hostname:

```

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

```

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

-----
Is all of the above information correct? [yes] :

```

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Primary IP Telephony Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Primary IP Telephony Server

```
----- Select System Configuration -----
```

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : 5

Enter 5 to configure this server for IP Telephony Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Telephony Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'IP Telephony Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Primary IP Telephony Server (continued)

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This server runs IP Telephony services. IP Messaging is provided on a separate server.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Telephony server.
- 2 - This is a regional office, secondary IP Telephony server.
- 3 - This is a branch office IP Telephony server.
- 4 - This server operates standalone.

Enter your choice by number [1] : **1**

Enter 1 to configure this server as the Primary IP Telephony server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The site name provides a user-friendly description of a location in a multi-site VCX installation. This may be used to identify a site in certain management interfaces. The site name may be up to 255 characters long and can contain letters, numbers, spaces, underscores, dashes, and colons.

Sample Services Configuration Script — Primary IP Telephony Server (continued)

Enter a description for this site :

Enter a site description of your choice.

In a regional office, IP Messaging can be used in two ways. In a Global Messaging configuration, the regional IP Messaging servers are used by the entire organization including branch offices. In a Local Messaging configuration, the regional IP Messaging servers are used only by the regional office, and branches have their own IP Messaging systems. NOTE: A regional office that has no branch offices uses Local Messaging.

Is Global Messaging in use? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). Single offices with two IP Telephony Servers and two IP Messaging Servers are configured for Local IP Messaging. That is, all users obtain IP Messaging services from the local IP Messaging Servers.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary IP Telephony Server.

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Telephony Server.

The primary IP Messaging Service provides voice mail and other messaging services for the system.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

Sample Services Configuration Script — Primary IP Telephony Server (continued)

The secondary IP Messaging Service is a backup for voice mail and other messaging services.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Messaging Server.

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the primary way of connecting to the Public Switched Telephone Network (PSTN).

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the secondary way of connecting to the Public Switched Telephone Network (PSTN).

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Enable the Call Records Service (Y/N)? [N] :

In order to generate call history reports or billing records, the VCX system must collect and save call records. These records are then used by a program such as Call Data Reporting (CDR) to generate reports. The Call Records Service gathers the records. This server is the Primary IP Telephony Server at a single site. Enter Y to enable the Call Records service.

The script prints a summary of the global parameters that you have entered.

Sample Services Configuration Script — Primary IP Telephony Server (continued)

----- Summary of Global Parameters -----

```

        Site Identifier :
            Site Name :
        Global Messaging In Use :
        Secondary Call Processor :
        Secondary Auth & Dir Service :
        Primary IP Messaging Service :
        Secondary IP Messaging Service :
        Primary Media Gateway :
        Secondary Media Gateway :
        Enable Call Records Service :

```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for Call Processor -----

Trusted Endpoints are allowed to send SIP Notify messages to the Call Processor. Certain Trusted Endpoints are configured automatically. Additional Trusted Endpoints can be entered here. Enter a blank input to indicate that all endpoints have been entered.

Additional Trusted Endpoint IP address

TrustedAddress :

Enter the IP address of any server or device that you want to be included in the list of trusted endpoints. To stop entering trusted endpoints, press the Enter or Return key when prompted for another entry.



CAUTION: Next, the system prompts you to enter the passwords for the Root, Oracle, Tomcat, Cworks, VCX, and App accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

Password :

Password (confirm) :

Sample Services Configuration Script — Primary IP Telephony Server (continued)

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

```
Login Password                             : *****
Login Password (confirm)                   : *****
```

Previously, the script prompted you to change the login password for the cworks account. If you changed the password, enter the new one. Otherwise, enter the default password.

VCX Authentication & Directory Services can provide support for System Speed Dials. This feature must be enabled only at a single site, and if replication is in use, the setting must be the same on the primary and secondary servers for that site.

Sample Services Configuration Script — Primary IP Telephony Server (continued)

Enable System Speed Dial Master? [N] :

At a single site, enter Y for the primary server and remember to answer Y when you configure the associated secondary server.

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Sample Services Configuration Script — Primary IP Telephony Server (continued)

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Primary IP Telephony Server

Configuring a Secondary IP Telephony Server (Single Site)

To begin the configuration process, enter this command:

vcx-setup

The configuration script starts. The first portion deals with network configuration.

Sample Network Configuration Script — Secondary IP Telephony Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 3](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Secondary IP Telephony Server (continued)

----- Configuring IP Interface 'eth1' -----

Interface State : enabled

Change the default value (disabled) to enabled.

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary NTP Server :

Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia

Sample Network Configuration Script — Secondary IP Telephony Server (continued)

```

6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

```

1. Antigua & Barbuda      18. Ecuador              35. Panama
2. Anguilla              19. Grenada              36. Peru
3. Netherlands Antilles  20. French Guiana       37. St Pierre & Miquelon
4. Argentina            21. Greenland           38. Puerto Rico
5. Aruba                22. Guadeloupe          39. Paraguay
6. Barbados             23. Guatemala           40. Suriname
7. Bolivia              24. Guyana              41. El Salvador
8. Brazil               25. Honduras            42. Turks & Caicos Is
9. Bahamas             26. Haiti               43. Trinidad & Tobago
10. Belize              27. Jamaica             44. United States
11. Canada              28. St Kitts & Nevis    45. Uruguay
12. Chile               29. Cayman Islands      46. St Vincent
13. Colombia           30. St Lucia            47. Venezuela
14. Costa Rica          31. Martinique          48. Virgin Islands (UK)
15. Cuba               32. Montserrat          49. Virgin Islands (US)
16. Dominica           33. Mexico
17. Dominican Republic 34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations

```

Sample Network Configuration Script — Secondary IP Telephony Server (continued)

```

13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

```

Hostname:

```

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

```

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

-----
Is all of the above information correct? [yes] :

```

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Secondary IP Telephony Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Secondary IP Telephony Server (continued)

 Please wait while the wizard completes.

----- Select System Configuration -----

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **5**

Enter 5 to configure this server for IP Telephony Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Telephony Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'IP Telephony Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Secondary IP Telephony Server (continued)

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

```
----- Configuring VCX Services -----
```

This server runs IP Telephony services. IP Messaging is provided on a separate server.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Telephony server.
- 2 - This is a regional office, secondary IP Telephony server.
- 3 - This is a branch office IP Telephony server.
- 4 - This server operates standalone.

Enter your choice by number [1] : **2**

Enter 2 to configure this server as the Secondary IP Telephony server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The site name provides a user-friendly description of a location in a multi-site VCX installation. This may be used to identify a site in certain management interfaces. The site name may be up to 255 characters long and can contain letters, numbers, spaces, underscores, dashes, and colons.

Sample Services Configuration Script — Secondary IP Telephony Server (continued)

Enter a description for this site :

Enter a site description of your choice.

In a regional office, IP Messaging can be used in two ways. In a Global Messaging configuration, the regional IP Messaging servers are used by the entire organization including branch offices. In a Local Messaging configuration, the regional IP Messaging servers are used only by the regional office, and branches have their own IP Messaging systems. NOTE: A regional office that has no branch offices uses Local Messaging.

Is Global Messaging in use? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). Single offices with two IP Telephony Servers and two IP Messaging Servers are configured for Local IP Messaging. That is, all users obtain IP Messaging services from the local IP Messaging Servers.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary IP Telephony Server.

The primary Authentication & Directory Service is principally responsible for performing authentication, authorization, and certain user-specific functions

IP address of the primary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Telephony Server.

The primary IP Messaging Service provides voice mail and other messaging services for the system.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

Sample Services Configuration Script — Secondary IP Telephony Server (continued)

The secondary IP Messaging Service is a backup for voice mail and other messaging services.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Messaging Server.

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the primary way of connecting to the Public Switched Telephone Network (PSTN).

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the secondary way of connecting to the Public Switched Telephone Network (PSTN).

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Enable the Call Records Service (Y/N)? [N] :

In order to generate call history reports or billing records, the VCX system must collect and save call records. These records are then used by a program such as Call Data Reporting (CDR) to generate reports. The Call Records Service gathers the records. This is the Secondary IP Telephony Server at a single site. The Call Records Service is enabled on the Primary IP Telephony Server. Press the Enter or Return key to accept the default answer (N).

The script prints a summary of the global parameters that you have entered.

Sample Services Configuration Script — Secondary IP Telephony Server (continued)

----- Summary of Global Parameters -----

```

        Site Identifier :
            Site Name :
    Global Messaging In Use :
        Primary Call Processor :
    Primary Auth & Dir Service :
    Primary IP Messaging Service :
    Secondary IP Messaging Service :
        Primary Media Gateway :
        Secondary Media Gateway :
    Enable Call Records Service :

```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for Call Processor -----

Trusted Endpoints are allowed to send SIP Notify messages to the Call Processor. Certain Trusted Endpoints are configured automatically. Additional Trusted Endpoints can be entered here. Enter a blank input to indicate that all endpoints have been entered.

Additional Trusted Endpoint IP address

TrustedAddress :

Enter the IP address of any server or device that you want to be included in the list of trusted endpoints. To stop entering trusted endpoints, press the Enter or Return key when prompted for another entry.



CAUTION: Next, the system prompts you to enter the passwords for the Root, Oracle, Tomcat, Cworks, VCX, and App accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password.A blank entry means 'no change'.

Password :

Password (confirm) :

Sample Services Configuration Script — Secondary IP Telephony Server (continued)

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

```
Login Password                             : *****
Login Password (confirm)                     : *****
```

Previously, the script prompted you to change the login password for the cworks account. If you changed the password, enter the new one. Otherwise, enter the default password.

VCX Authentication & Directory Services can provide support for System Speed Dials. This feature must be enabled only at a single site, and if replication is in use, the setting must be the same on the primary and secondary servers for that site.

Enable System Speed Dial Master? [N] :

At a single site, you should have entered Y for the primary server. You must also answer Y here, for the associated secondary server.

Sample Services Configuration Script — Secondary IP Telephony Server (continued)

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Sample Services Configuration Script — Secondary IP Telephony Server (continued)

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Secondary IP Telephony Server

Configuring an IP Telephony Server at a Branch Office

To begin the configuration process, enter this command:

vcx-setup

The configuration script starts. The first portion deals with network configuration.

Sample Network Configuration Script — Branch Office IP Telephony Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

```
----- Configuring IP Interface 'eth1' -----
```

Interface State : disabled

IP Address :

Network Subnet Mask :

Default Gateway Address :

Branch office servers have only one network interface (eth0) enabled. Enter no information for IP Address, Subnet Mask, or Default Gateway Address.

Sample Network Configuration Script — Branch Office IP Telephony Server (continued)

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify

a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary NTP Server :

Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia
6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean

Enter continent [2] :

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Sample Network Configuration Script — Branch Office IP Telephony Server (continued)

Please select a country from the following list:

- | | | |
|-------------------------|----------------------|--------------------------|
| 1. Antigua & Barbuda | 18. Ecuador | 35. Panama |
| 2. Anguilla | 19. Grenada | 36. Peru |
| 3. Netherlands Antilles | 20. French Guiana | 37. St Pierre & Miquelon |
| 4. Argentina | 21. Greenland | 38. Puerto Rico |
| 5. Aruba | 22. Guadeloupe | 39. Paraguay |
| 6. Barbados | 23. Guatemala | 40. Suriname |
| 7. Bolivia | 24. Guyana | 41. El Salvador |
| 8. Brazil | 25. Honduras | 42. Turks & Caicos Is |
| 9. Bahamas | 26. Haiti | 43. Trinidad & Tobago |
| 10. Belize | 27. Jamaica | 44. United States |
| 11. Canada | 28. St Kitts & Nevis | 45. Uruguay |
| 12. Chile | 29. Cayman Islands | 46. St Vincent |
| 13. Colombia | 30. St Lucia | 47. Venezuela |
| 14. Costa Rica | 31. Martinique | 48. Virgin Islands (UK) |
| 15. Cuba | 32. Montserrat | 49. Virgin Islands (US) |
| 16. Dominica | 33. Mexico | |
| 17. Dominican Republic | 34. Nicaragua | |

Enter country [44] :

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time

Sample Network Configuration Script — Branch Office IP Telephony Server (continued)

```

20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

```

Hostname:

```

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

```

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

-----

```

Is all of the above information correct? [yes] :

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Branch Office IP Telephony Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Branch Office IP Telephony Server

```
----- Select System Configuration -----
```

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **5**

Enter 5 to configure this server for IP Telephony Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Telephony Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'IP Telephony Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Branch Office IP Telephony Server (continued)

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

```
----- Configuring VCX Services -----
```

This server runs IP Telephony services. IP Messaging is provided on a separate server.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Telephony server.
- 2 - This is a regional office, secondary IP Telephony server.
- 3 - This is a branch office IP Telephony server.
- 4 - This server operates standalone.

Enter your choice by number [1] : **3**

Enter 3 to configure this server as a branch office IP Telephony server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary IP Telephony Server.

Sample Services Configuration Script — Branch Office IP Telephony Server (continued)

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Telephony Server.

The primary IP Messaging Service provides voice mail and other messaging services for the system.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

The secondary IP Messaging Service is a backup for voice mail and other messaging services.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Messaging Server.

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway : 10.230.63.15

Enter the IP address of the analog or digital media gateway that this VCX server will use as the primary way of connecting to the Public Switched Telephone Network (PSTN).

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the secondary way of connecting to the Public Switched Telephone Network (PSTN).

Sample Services Configuration Script — Branch Office IP Telephony Server (continued)

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Enable the Call Records Service (Y/N)? [N] :

In order to generate call history reports or billing records, the VCX system must collect and save call records. These records are then used by a program such as Call Data Reporting (CDR) to generate reports. The Call Records Service gathers the records and is configured on a separate server in a regional office. This server is a branch office server. Press the Enter or Return key to accept the default answer (N).

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```

                Site Identifier :
        Secondary Call Processor :
    Secondary Auth & Dir Service :
    Primary IP Messaging Service :
    Secondary IP Messaging Service :
                Primary Media Gateway :
                Secondary Media Gateway :
        Enable Call Records Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for Call Processor -----

Trusted Endpoints are allowed to send SIP Notify messages to the Call Processor. Certain Trusted Endpoints are configured automatically. Additional Trusted Endpoints can be entered here. Enter a blank input to indicate that all endpoints have been entered.

Additional Trusted Endpoint IP address

TrustedAddress :

Enter the IP address of any server or device that you want to be included in the list of trusted endpoints. To stop entering trusted endpoints, press the Enter or Return key when prompted for another entry.

Sample Services Configuration Script — Branch Office IP Telephony Server (continued)

CAUTION: Next, the system prompts you to enter the passwords for the Root, Oracle, Tomcat, Cworks, VCX, and App accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
Tomcat account password. A blank entry means 'no change'.
```

```
Password                                     :
Password (confirm)                           :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

```
Login Password                               : *****
Login Password (confirm)                     : *****
```

Previously, the script prompted you to change the login password for the cworks account. If you changed the password, enter the new one. Otherwise, enter the default password.

Sample Services Configuration Script — Branch Office IP Telephony Server (continued)

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Sample Services Configuration Script — Branch Office IP Telephony Server (continued)

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Branch Office IP Telephony Server

4

INSTALLING AN IP MESSAGING SERVER

Definition This chapter describes how to install a VCX IP Messaging Server which runs these services

- IP Messaging
- Common Agent

Where Used An IP Messaging Server is used wherever IP Messaging are required on a separate server. IP Messaging can be configured in these ways:

- As a single server (non mirrored)
- As a pair of mirrored servers
- As a group of servers where one server is the main server and the others are clients

To determine where this server can be used in your configuration, contact your Voice Authorized 3Com Representative.

Sample Configuration Scripts

IP Messaging servers are installed on IBM X346 machines. The sample configuration scripts in this chapter describe how to configure a Primary or Secondary IP Messaging Server.



CAUTION: Before you configure any server, you must first obtain and install a valid license key on that server. If you do not install the license, many software processes that are critical to the proper operation of the server cannot start.

See these sections:

- [Configuring a Primary IP Messaging Server](#)
- [Configuring a Secondary IP Messaging Server](#)
- [Configuring a Branch Office IP Messaging Server](#)
- [Configuring a Client IP Messaging Server](#)

Configuring a Primary IP Messaging Server

A primary IP Messaging Server can be part of a mirrored pair of servers. It can also be the primary server in a group of IP Messaging servers in which all other servers are clients. To begin the configuration process, enter this command:

vcx-setup

The network configuration portion of the script starts.

Sample Network Configuration Script — Primary IP Messaging Server

```
-----
----- Welcome to the VCX Network Configuration Wizard -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Sample Network Configuration Script — Primary IP Messaging Server (continued)

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

----- Configuring Hostname -----

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 4](#).

----- Configuring IP Interface 'eth0' -----

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

----- Configuring IP Interface 'eth1' -----

Interface State : enabled

Change the default value (disabled) to enabled.

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

Sample Network Configuration Script — Primary IP Messaging Server (continued)

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary NTP Server :

Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: *If VCX systems are not synchronized via NTP, timing-related problems can occur.*

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia
6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean

Enter continent [2] :

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

- | | | |
|-------------------------|----------------------|--------------------------|
| 1. Antigua & Barbuda | 18. Ecuador | 35. Panama |
| 2. Anguilla | 19. Grenada | 36. Peru |
| 3. Netherlands Antilles | 20. French Guiana | 37. St Pierre & Miquelon |
| 4. Argentina | 21. Greenland | 38. Puerto Rico |
| 5. Aruba | 22. Guadeloupe | 39. Paraguay |
| 6. Barbados | 23. Guatemala | 40. Suriname |
| 7. Bolivia | 24. Guyana | 41. El Salvador |
| 8. Brazil | 25. Honduras | 42. Turks & Caicos Is |
| 9. Bahamas | 26. Haiti | 43. Trinidad & Tobago |
| 10. Belize | 27. Jamaica | 44. United States |
| 11. Canada | 28. St Kitts & Nevis | 45. Uruguay |
| 12. Chile | 29. Cayman Islands | 46. St Vincent |
| 13. Colombia | 30. St Lucia | 47. Venezuela |
| 14. Costa Rica | 31. Martinique | 48. Virgin Islands (UK) |
| 15. Cuba | 32. Montserrat | 49. Virgin Islands (US) |

Sample Network Configuration Script — Primary IP Messaging Server (continued)

```

16. Dominica                33. Mexico
17. Dominican Republic     34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time

```

```
Enter zone [13] :
```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

Sample Network Configuration Script — Primary IP Messaging Server (continued)

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

Hostname:

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:
-----

```

Is all of the above information correct? [yes] :

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Primary IP Messaging Server

The script displays several status messages and immediately begins the configuration of the system services.

```

----- Select System Configuration -----

```

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Sample Services Configuration Script — Primary IP Messaging Server (continued)

Enter your choice (1-6) : **6**

Enter 6 to specify IP Messaging Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Messaging Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'IP Messaging Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

Sample Services Configuration Script — Primary IP Messaging Server (continued)

----- Configuring VCX Services -----

This system runs IP Messaging services.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Messaging server.
- 2 - This is a regional office, secondary IP Messaging server.
- 3 - This is a branch office IP Messaging system.
- 4 - This system is a client in an IPMSG client-server deployment.
- 5 - This system operates standalone.

Enter your choice by number [1] : **1**

Enter 1 to configure this server as the primary IP Messaging Server in a regional office.

Services running on this system need to communicate with other systems and devices in order to operate. In the next series of questions, you will be asked for information about these, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The Customer Name identifies the company using this VCX system.

Enter the customer name :

Enter the name of your company.

Some VCX applications can use European date ordering. Answer 'Y' here to enable this.

Use European date order? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). If you want to display dates using the European order, enter Y.

Sample Services Configuration Script — Primary IP Messaging Server (continued)

In a regional office, IP Messaging can be used in two ways. In a Global Messaging configuration, the regional IP Messaging systems are used by the entire organization including branch offices. In a Local Messaging configuration, the regional IP Messaging systems are used only by the regional office, and branches have their own IP Messaging systems. NOTE: A regional office that has no branch offices uses Local Messaging.

Is Global Messaging in use? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). Single offices with two servers and regional offices with no branch offices are configured for Local IP Messaging. That is, all users obtain IP Messaging services from the local IP Messaging Servers.

The SIP default dialing domain is used to construct the SIP URI for outbound SIP requests.

Enter the SIP default dialing domain : 1.1.1.1

You must use the same dialing domain for all servers in a VCX system. 3Com recommends the use of 1.1.1.1 as the dialing domain.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server.

The primary Authentication & Directory Service is principally responsible for performing authentication, authorization, and certain user-specific functions

IP address of the primary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary Authentication and Directory Server.

Sample Services Configuration Script — Primary IP Messaging Server (continued)

The secondary IP Messaging Service is a backup for voice mail and other messaging services. In some configurations a dedicated IP Messaging Server runs this service.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Messaging Server.

----- Summary of Global Parameters -----

```

Site Identifier :
Customer Name :
European Date Order :
Global Messaging In Use :
SIP Default Dialing Domain :
Primary Call Processor :
Secondary Call Processor :
Primary Auth & Dir Service :
Secondary IP Messaging Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for System -----

Root account password. A blank entry means 'no change'.

```

Password :
Password (confirm) :
```

VCX account password. A blank entry means 'no change'.

```

Password :
Password (confirm) :
```

App account password. A blank entry means 'no change'.

```

Password :
Password (confirm) :
```


Sample Services Configuration Script — Primary IP Messaging Server (continued)

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for IP Messaging Service -----

How many voice ports does this IP Messaging System have?

Number of VoIP ports : 120

Press the Enter or Return key to accept the default value (120).

The hostname of the other IP Messaging system is needed in order to set up Intelligent Mirroring redundancy with this system.

Hostname of peer IP Messaging system :

Enter the host name of the Secondary IP Messaging Server.

IP Messaging includes an optional ability to archive messages to an external server.

Is Message Archival enabled? [N] :

Press the Enter or Return key to accept the default answer (N). Message archiving provides a secure (sftp) way to archive a copy of each voicemail message that is created. You cannot restore messages to user voice mailboxes. If you answer Y to this question, the script prompts you to supply the following information about the archival server: IP address, a user name and login password for sftp access, and the name (path) of the directory into which messages will be placed.



If you choose to not enable message archiving, you cannot enable it later.

IP Messaging includes an optional ability to back up messages to an external server.

Enable data backup server for IPMS? [N] :

Press the Enter or Return key to accept the default answer (N). Data backup provides a secure (sftp) way to save a snapshot of all IP Messaging data currently stored on the VCX system. If you answer Y to this question, the script prompts you to supply the following information about the backup server: IP address, a user name and login password for sftp access, and the name of the directory into which the data will be placed.

Sample Services Configuration Script — Primary IP Messaging Server (continued)

IP Messaging includes an optional ability to import subscriber profiles from VCX.

Enable VCX subscriber bulk import? [Y] :

Press the Enter or Return key to accept the default answer (Y). Subscriber bulk import provides a way to import a large number of IP Messaging subscriber profiles at one time by creating a file that contains the subscriber information and then importing the file. If you answer Y to this question, the script prompts you to supply a user name and login password for the VCX Authentication and Directory Server.

For VCX subscriber bulk import, the user name to use when accessing the VCX Authentication & Directory Server is needed.

User name for access to Auth & Dir Server : cworks

The default user name for logging in to the Authentication and Directory Server is cworks.

In addition, the password for the previously provided user name is required. Specify the password to use when accessing the VCX Authentication & Directory Server.

Password for access to Auth & Dir Server : cworks



CAUTION: *The default password for logging in to the Authentication and Directory Server is cworks. 3Com strongly recommends that customers change default passwords for security reasons. Consult your VCX system administrator to determine the appropriate password to enter.*

IP Messaging includes support for Text To Speech (TTS) via one or more external servers. To use this feature you must answer 'Y' here.

Is Text To Speech (TTS) enabled? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script prompts you for the IP address of up to four Text-to-Speech Servers. Each server is a PC running the Windows operating system. If you have entered IP addresses for all of your Text-to-Speech Servers, press the Enter or Return key for all remaining IP address prompts. If you enable Text-to-Speech, you must use the G711u CODEC (the default), not the G729a CODEC.

Sample Services Configuration Script — Primary IP Messaging Server (continued)

IP Messaging can be deployed in a client-server configuration to support more users. If you answer 'Y' here this system will be configured as a server and you will be asked additional configuration questions to set up this feature.

Will this system support IPMSG client systems? [N] :

If you want to add IPMSG clients to your system, you must answer Y to this question. If your configuration includes only a primary and secondary server pair, press the Enter or Return key to accept the default answer (N).



The series of prompts for the IP addresses and hostnames of IP Messaging Clients appears only if you answered Y to the previous question.

A list of each of the IPMSG client systems' IP addresses and hostnames is required. Enter a blank input to indicate that all clients have been entered.

IP address of IPMSG client 1

Client IP Address :

Enter the IP address of the first IP Messaging Client.

Hostname of IPMSG client 1

Client Hostname :

Enter the hostname of the first IP Messaging Client.



You can enter up to 20 IP Messaging Clients. To finish entering clients, press the Enter or Return key when prompted for the IP address of the next client.

Do you wish to change any of the IP Messaging Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

Sample Services Configuration Script — Primary IP Messaging Server (continued)

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Sample Services Configuration Script — Primary IP Messaging Server (continued)

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Primary IP Messaging Server

Configuring a Secondary IP Messaging Server

To begin the configuration process, enter this command:

vcx-setup

The network configuration portion of the script starts.

Sample Network Configuration Script — Secondary IP Messaging Server

```
-----
----- Welcome to the VCX Network Configuration Wizard -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 4](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Secondary IP Messaging Server (continued)

----- Configuring IP Interface 'eth1' -----

Interface State : enabled

Change the default value (disabled) to enabled.

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary NTP Server :

Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia

Sample Network Configuration Script — Secondary IP Messaging Server (continued)

```

6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

```

1. Antigua & Barbuda    18. Ecuador            35. Panama
2. Anguilla             19. Grenada            36. Peru
3. Netherlands Antilles 20. French Guiana      37. St Pierre & Miquelon
4. Argentina           21. Greenland          38. Puerto Rico
5. Aruba                22. Guadeloupe         39. Paraguay
6. Barbados             23. Guatemala          40. Suriname
7. Bolivia              24. Guyana              41. El Salvador
8. Brazil               25. Honduras           42. Turks & Caicos Is
9. Bahamas              26. Haiti               43. Trinidad & Tobago
10. Belize              27. Jamaica             44. United States
11. Canada              28. St Kitts & Nevis    45. Uruguay
12. Chile               29. Cayman Islands      46. St Vincent
13. Colombia            30. St Lucia            47. Venezuela
14. Costa Rica          31. Martinique          48. Virgin Islands (UK)
15. Cuba                32. Montserrat          49. Virgin Islands (US)
16. Dominica            33. Mexico
17. Dominican Republic 34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County

```


Sample Network Configuration Script — Secondary IP Messaging Server (continued)

```

10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

```

Hostname:

```

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

```

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

-----

```

Sample Network Configuration Script — Secondary IP Messaging Server (continued)

Is all of the above information correct? [yes] :

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Secondary IP Messaging Server

The script displays several status messages and immediately begins the configuration of the system services.

----- Select System Configuration -----

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : 6

Enter 6 to configure this server for IP Messaging Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Messaging Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Sample Services Configuration Script — Secondary IP Messaging Server (continued)

Are you absolutely certain that you wish to configure this system as an 'IP Messaging Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This system runs IP Messaging services.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Messaging server.
- 2 - This is a regional office, secondary IP Messaging server.
- 3 - This is a branch office IP Messaging system.
- 4 - This system is a client in an IPMSG client-server deployment.
- 5 - This system operates standalone.

Enter your choice by number [1] : **2**

Enter 2 to configure this server as the Secondary IP Messaging server.

Services running on this system need to communicate with other systems and devices in order to operate. In the next series of questions, you will be asked for information about these, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Sample Services Configuration Script — Secondary IP Messaging Server (continued)

Enter a unique identifier for this site :

Enter a site ID of your choice.

The Customer Name identifies the company using this VCX system.

Enter the customer name :

Enter the name of your company.

Some VCX applications can use European date ordering. Answer 'Y' here to enable this.

Use European date order? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). If you want to display dates using the European order, enter Y.

In a regional office, IP Messaging can be used in two ways. In a Global Messaging configuration, the regional IP Messaging systems are used by the entire organization including branch offices. In a Local Messaging configuration, the regional IP Messaging systems are used only by the regional office, and branches have their own IP Messaging systems. NOTE: A regional office that has no branch offices uses Local Messaging.

Is Global Messaging in use? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). Single offices with two servers and regional offices with no branch offices are configured for Local IP Messaging. That is, all users obtain IP Messaging services from the local IP Messaging Servers.

The SIP default dialing domain is used to construct the SIP URI for outbound SIP requests.

Enter the SIP default dialing domain : 1.1.1.1

You must use the same dialing domain for all servers in a VCX system. 3Com recommends the use of 1.1.1.1 as the dialing domain.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server.

Sample Services Configuration Script — Secondary IP Messaging Server (continued)

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server.

The primary Authentication & Directory Service is principally responsible for performing authentication, authorization, and certain user-specific functions

IP address of the primary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary Authentication and Directory Server.

The primary IP Messaging Service provides voice mail and other messaging services. In some configurations a dedicated IP Messaging Server runs this service.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```

Site Identifier :
Customer Name :
European Date Order :
Global Messaging In Use :
SIP Default Dialing Domain :
Primary Call Processor :
Secondary Call Processor :
Primary Auth & Dir Service :
Primary IP Messaging Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

Sample Services Configuration Script — Secondary IP Messaging Server (continued)

----- Configuring additional parameters for System -----

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

App account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for IP Messaging Service -----

How many voice ports does this IP Messaging System have?

```
Number of VoIP ports                         : 120
```

Press the Enter or Return key to accept the default value (120).

IP Messaging includes an optional ability to archive messages to an external server.

```
Is Message Archival enabled? [N]            :
```

Press the Enter or Return key to accept the default answer (N). Message archiving provides a secure (sftp) way to archive a copy of each voicemail message that is created. You cannot restore messages to user voice mailboxes. If you answer Y to this question, the script prompts you to supply the following information about the archival server: IP address, a user name and login password for sftp access, and the name (path) of the directory into which messages will be placed.



If you choose to not enable message archiving, you cannot enable it later.

Sample Services Configuration Script — Secondary IP Messaging Server (continued)

IP Messaging includes an optional ability to back up messages to an external server.

Enable data backup server for IPMS? [N] :

Press the Enter or Return key to accept the default answer (N). Data backup provides a secure (sftp) way to save a snapshot of all IP Messaging data currently stored on the VCX system. If you answer Y to this question, the script prompts you to supply the following information about the backup server: IP address, a user name and login password for sftp access, and the name of the directory into which the data will be placed.

IP Messaging includes an optional ability to import subscriber profiles from VCX.

Enable VCX subscriber bulk import? [Y] :

Press the Enter or Return key to accept the default answer (Y). Subscriber bulk import provides a way to import a large number of IP Messaging subscriber profiles at one time by creating a file that contains the subscriber information and then importing the file. If you answer Y to this question, the script prompts you to supply a user name and login password for the VCX Authentication and Directory Server.

For VCX subscriber bulk import, the user name to use when accessing the VCX Authentication & Directory Server is needed.

User name for access to Auth & Dir Server : cworks

The default user name for logging in to the Authentication and Directory Server is cworks.

In addition, the password for the previously provided user name is required. Specify the password to use when accessing the VCX Authentication & Directory Server.

Password for access to Auth & Dir Server : cworks



CAUTION: The default password for logging in to the Authentication and Directory Server is cworks. 3Com strongly recommends that customers change default passwords for security reasons. Consult your VCX system administrator to determine the appropriate password to enter.

Sample Services Configuration Script — Secondary IP Messaging Server (continued)

IP Messaging includes support for Text To Speech (TTS) via one or more external servers. To use this feature you must answer 'Y' here.

Is Text To Speech (TTS) enabled? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script prompts you for the IP address of up to four Text-to-Speech Servers. Each server is a PC running the Windows operating system. If you have entered IP addresses for all of your Text-to-Speech Servers, press the Enter or Return key for all remaining IP address prompts. If you enable Text-to-Speech, you must use the G711u CODEC (the default), not the G729a CODEC.

IP Messaging can be deployed in a client-server configuration to support more users. If you answer 'Y' here this system will be configured as a server and you will be asked additional configuration questions to set up this feature.

Will this system support IPMSG client systems? [N] :

If you configured the Primary IP Messaging Server to have IPMSG clients, you must answer Y to this question. If your configuration includes only a primary and secondary server pair, press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the system uses the IP addresses and hostnames of the IP Messaging clients that you entered during the configuration of the Primary IP Messaging Server.

Do you wish to change any of the IP Messaging Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

Sample Services Configuration Script — Secondary IP Messaging Server (continued)

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

```
Trap Community String                                : public
```



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

```
Write Community String                              : private
```



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

```
Read Community String                               : public
```



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature.

Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

```
Enable management station authentication? [N]      :
```

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

```
Do you wish to change any of the Common Agent parameters? [N] :
```

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Sample Services Configuration Script — Secondary IP Messaging Server (continued)

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Secondary IP Messaging Server

Configuring a Branch Office IP Messaging Server

To begin the configuration process, enter this command:

vcx-setup

The network configuration portion of the script starts.

Sample Network Configuration Script — Branch Office IP Messaging Server

```
-----
----- Welcome to the VCX Network Configuration Wizard -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

IP addresses for VCX servers must be static addresses. Enter no to configure the network parameters for eth0 manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the name that you want to use for this branch office server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 1](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter an IP Address, Network Subnet Mask, and Default Gateway Address that are appropriate for this branch office.

Sample Network Configuration Script — Branch Office IP Messaging Server (continued)

```
----- Configuring IP Interface 'eth1' -----
Interface State          : disabled
```

A branch office VCX server uses only the eth0 network interface. Press the Enter or Return key to accept the default answer (disabled).

```
----- Configuring DNS Servers -----
Enter DNS servers one at a time.
When done, enter 0.0.0.0 to stop.
```

```
Primary DNS Server      :
Secondary DNS Server    :
Tertiary DNS Server     :
```

Enter the IP addresses for up to three Domain Name Service (DNS) servers. The script interprets a 0.0.0.0 address as the end of the list.

```
----- Configuring DNS Search Path -----
Press Enter to leave the current path unchanged, or specify
a new search path, with spaces separating each entry.
```

```
DNS Search Path :
```

Enter the DNS search path appropriate for the domain for the branch office.

```
----- Configuring Network Time Protocol -----
Enter NTP servers one at a time.
When done, enter 0.0.0.0 to stop.
```

```
Primary NTP Server      :
Secondary NTP Server    :
```

Enter the IP addresses for up to two Network Time Protocol (NTP) servers. The script interprets a 0.0.0.0 address as the end of the list.



CAUTION: *If VCX systems are not synchronized via NTP, timing-related problems can occur.*

```
----- Configuring Time Zone -----
```

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia
6. Atlantic Ocean

Sample Network Configuration Script — Branch Office IP Messaging Server (continued)

```

7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

1. Antigua & Barbuda	18. Ecuador	35. Panama
2. Anguilla	19. Grenada	36. Peru
3. Netherlands Antilles	20. French Guiana	37. St Pierre & Miquelon
4. Argentina	21. Greenland	38. Puerto Rico
5. Aruba	22. Guadeloupe	39. Paraguay
6. Barbados	23. Guatemala	40. Suriname
7. Bolivia	24. Guyana	41. El Salvador
8. Brazil	25. Honduras	42. Turks & Caicos Is
9. Bahamas	26. Haiti	43. Trinidad & Tobago
10. Belize	27. Jamaica	44. United States
11. Canada	28. St Kitts & Nevis	45. Uruguay
12. Chile	29. Cayman Islands	46. St Vincent
13. Colombia	30. St Lucia	47. Venezuela
14. Costa Rica	31. Martinique	48. Virgin Islands (UK)
15. Cuba	32. Montserrat	49. Virgin Islands (US)
16. Dominica	33. Mexico	
17. Dominican Republic	34. Nicaragua	

Enter country [44] :

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County

Sample Network Configuration Script — Branch Office IP Messaging Server (continued)

```

10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script confirms your time zone selection and then prints a summary of the configuration parameters that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

Hostname:

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:
-----

```

Sample Network Configuration Script — Branch Office IP Messaging Server (continued)

Is all of the above information correct? [yes] :

Review the information for accuracy and if it is correct, press the Enter or Return key. If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Branch Office IP Messaging Server

The script displays several status messages and prompts you to select the system configuration type for this server.

Sample Services Configuration Script — Branch Office IP Messaging Server

----- Select System Configuration -----

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : 6

Enter 6 to configure this server for IP Messaging Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Messaging Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Sample Services Configuration Script — Branch Office IP Messaging Server (continued)

Are you absolutely certain that you wish to configure this system as an 'IP Messaging Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes and press the Enter or Return key to confirm your selection. If you want to change your selection, enter no.

Selection confirmed.

The script displays several configuration status messages and then begins the configuration of VCX services.

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the default answer (Y).

```
----- Configuring VCX Services -----
```

This system runs IP Messaging services.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Messaging server.
- 2 - This is a regional office, secondary IP Messaging server.
- 3 - This is a branch office IP Messaging system.
- 4 - This system is a client in an IPMSG client-server deployment.
- 5 - This system operates standalone.

Enter your choice by number [1] : **3**

Enter 2 to configure this server as a Branch Office IP Messaging server.

Services running on this system need to communicate with other systems and devices in order to operate. In the next series of questions, you will be asked for information about these, and for other global parameters.

Sample Services Configuration Script — Branch Office IP Messaging Server (continued)

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter an identifier for the branch office in which this server will reside.

The Customer Name identifies the company using this VCX system.

Enter the customer name :

Enter the name of your company.

Some VCX applications can use European date ordering. Answer 'Y' here to enable this.

Use European date order? (Y/N) [N] :

Press the Enter or Return key to accept the default answer (N). To use the European date order, enter Y.

The SIP default dialing domain is used to construct the SIP URI for outbound SIP requests.

Enter the SIP default dialing domain : 1.1.1.1

VCX systems require 1.1.1.1 as the default dialing domain. Press the Enter or Return key to accept the default value.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server in your VCX system.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server in your VCX system.

Sample Services Configuration Script — Branch Office IP Messaging Server (continued)

The primary Authentication & Directory Service is principally responsible for performing authentication, authorization, and certain user-specific functions

IP address of the primary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary Authentication and Directory Server in your VCX system.

The script prints a summary of the global parameters that you have specified.

----- Summary of Global Parameters -----

```

Site Identifier :
Customer Name :
European Date Order :
SIP Default Dialing Domain :
Primary Call Processor :
Secondary Call Processor :
Primary Auth & Dir Service :

```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change your selection, enter Y.

----- Configuring additional parameters for System -----

Root account password. A blank entry means 'no change'.

```

Password :
Password (confirm) :

```

VCX account password. A blank entry means 'no change'.

```

Password :
Password (confirm) :

```

App account password. A blank entry means 'no change'.

```

Password :
Password (confirm) :

```

Sample Services Configuration Script — Branch Office IP Messaging Server (continued)

Do you wish to change any of the System parameters? [N] :

----- Configuring additional parameters for IP Messaging Service -----

IP Messaging includes an optional ability to archive messages to an external server.

Is Message Archival enabled? [N] :

Press the Enter or Return key to accept the default answer (N). Message archiving provides a secure (sftp) way to archive a copy of each voicemail message that is created. You cannot restore messages to user voice mailboxes. If you answer Y to this question, the script prompts you to supply the following information about the archival server: IP address, a user name and login password for sftp access, and the name (path) of the directory into which messages will be placed.



If you choose to not enable message archiving, you cannot enable it later.

IP Messaging includes an optional ability to back up messages to an external server.

Enable data backup server for IPMS? [N] :

Press the Enter or Return key to accept the default answer (N). Data backup provides a secure (sftp) way to save a snapshot of all IP Messaging data currently stored on the VCX system. If you answer Y to this question, the script prompts you to supply the following information about the backup server: IP address, a user name and login password for sftp access, and the name of the directory into which the data will be placed.

IP Messaging includes an optional ability to import subscriber profiles from VCX.

Enable VCX subscriber bulk import? [Y] :

Press the Enter or Return key to accept the default answer (Y). Subscriber bulk import provides a way to import a large number of IP Messaging subscriber profiles at one time by creating a file that contains the subscriber information and then importing the file. If you answer Y to this question, the script prompts you to supply a user name and login password for the VCX Authentication and Directory Server.

Sample Services Configuration Script — Branch Office IP Messaging Server (continued)

For VCX subscriber bulk import, the user name to use when accessing the VCX Authentication & Directory Server is needed.

User name for access to Auth & Dir Server :

Enter the user name that you defined earlier in this script. If you did not change the default user name, enter cworks.

In addition, the password for the previously provided user name is required. Specify the password to use when accessing the VCX Authentication & Directory Server.

Password for access to Auth & Dir Server :



CAUTION: *Enter the password that you defined earlier in this script. If you did not change the default value, enter cworks as the password. 3Com strongly recommends that customers change the default passwords for security reasons.*

IP Messaging includes support for Text To Speech (TTS) via one or more external servers. To use this feature you must answer 'Y' here.

Is Text To Speech (TTS) enabled? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script prompts you for the IP address of up to four Text-to-Speech Servers. Each server is a PC running the Windows operating system. If you have entered IP addresses for all of your Text-to-Speech Servers, press the Enter or Return key for all remaining IP address prompts. If you enable Text-to-Speech, you must use the G711u CODEC (the default), not the G729a CODEC.

Do you wish to change any of the IP Messaging Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

Sample Services Configuration Script — Branch Office IP Messaging Server (continued)

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC on which your network management software runs.

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). If you want to specify a different trap community string, enter it instead. 3Com strongly recommends that customers change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). If you want to specify a different write community string, enter it instead. 3Com strongly recommends that customers change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). If you want to specify a different read community string, enter it instead. 3Com strongly recommends that customers change this string for security reasons.

Sample Services Configuration Script — Branch Office IP Messaging Server (continued)

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. If you answer Y, the script prompts you for the IP addresses of up to four authorized network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Review the information for accuracy and if it is correct, press the Enter or Return key. If you want to change any of the information, enter Y.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Branch Office Server

Post-Installation Steps

After you install a branch office IP Messaging system, you must define the branch office server as a trusted end point on the VCX Authentication and Directory server in the associated regional office.

See [“Adding Trusted Endpoints”](#) in [Chapter 11](#) for instructions on how to add trusted end points.

Configuring a IP Messaging Client

To begin the configuration process, enter this command:

vcx-setup

The network configuration portion of the script starts.

Sample Network Configuration Script — IP Messaging Client

```
-----
----- Welcome to the VCX Network Configuration Wizard -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

IP addresses for VCX servers must be static addresses. Enter no to configure the network parameters for eth0 manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the name that you want to use for this branch office server. Unqualified host names must conform to the rules outlined in [“Host Names”](#) in [Chapter 1](#).

Sample Network Configuration Script — IP Messaging Client (continued)

```
----- Configuring IP Interface 'eth0' -----
IP Address      :
Network Subnet Mask :
Default Gateway Address :
```

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

```
----- Configuring IP Interface 'eth1' -----
Interface State : enabled
```

Change the default value (disabled) to enabled.

```
IP Address      :
Network Subnet Mask :
Default Gateway Address :
```

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

```
----- Configuring DNS Servers -----
Enter DNS servers one at a time.
When done, enter 0.0.0.0 to stop.
```

```
Primary DNS Server      :
Secondary DNS Server    :
Tertiary DNS Server     :
```

Enter up to three DNS server IP addresses.

```
----- Configuring DNS Search Path -----
Press Enter to leave the current path unchanged, or specify
a new search path, with spaces separating each entry.
```

```
DNS Search Path :
```

Enter the DNS search path appropriate for this site.

```
----- Configuring Network Time Protocol -----
Enter NTP servers one at a time.
When done, enter 0.0.0.0 to stop.
```

```
Primary NTP Server      :
Secondary NTP Server    :
```

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

Sample Network Configuration Script — IP Messaging Client (continued)

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia
6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean

Enter continent [2] :

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

- | | | |
|-------------------------|----------------------|--------------------------|
| 1. Antigua & Barbuda | 18. Ecuador | 35. Panama |
| 2. Anguilla | 19. Grenada | 36. Peru |
| 3. Netherlands Antilles | 20. French Guiana | 37. St Pierre & Miquelon |
| 4. Argentina | 21. Greenland | 38. Puerto Rico |
| 5. Aruba | 22. Guadeloupe | 39. Paraguay |
| 6. Barbados | 23. Guatemala | 40. Suriname |
| 7. Bolivia | 24. Guyana | 41. El Salvador |
| 8. Brazil | 25. Honduras | 42. Turks & Caicos Is |
| 9. Bahamas | 26. Haiti | 43. Trinidad & Tobago |
| 10. Belize | 27. Jamaica | 44. United States |
| 11. Canada | 28. St Kitts & Nevis | 45. Uruguay |
| 12. Chile | 29. Cayman Islands | 46. St Vincent |
| 13. Colombia | 30. St Lucia | 47. Venezuela |
| 14. Costa Rica | 31. Martinique | 48. Virgin Islands (UK) |
| 15. Cuba | 32. Montserrat | 49. Virgin Islands (US) |
| 16. Dominica | 33. Mexico | |
| 17. Dominican Republic | 34. Nicaragua | |

Enter country [44] :

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Sample Network Configuration Script — IP Messaging Client (continued)

Please select a time zone from the following list:

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time

Enter zone [13] :

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

Sample Network Configuration Script — IP Messaging Client (continued)

```
----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect
```

```
Hostname:
```

```
IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                  eth0
                  eth1
```

```
DNS Servers:
```

```
Search Domains:
```

```
NTP Servers:
```

```
Time Zone:
```

```
-----
Is all of the above information correct? [yes] :
```

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — IP Messaging Client

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — IP Messaging Client

```
----- Select System Configuration -----
```

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Sample Services Configuration Script — IP Messaging Client (continued)

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **6**

Enter 6 to configure this server for IP Messaging Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

IP Messaging Services

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'IP Messaging Services' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

Sample Services Configuration Script — IP Messaging Client (continued)

----- Configuring VCX Services -----

This system runs IP Messaging services.

Please enter the role of this system:

- 1 - This is a regional office, primary IP Messaging server.
- 2 - This is a regional office, secondary IP Messaging server.
- 3 - This is a branch office IP Messaging system.
- 4 - This system is a client in an IPMSG client-server deployment.
- 5 - This system operates standalone.

Enter your choice by number [1] : **4**

Enter 4 to configure this server as a client in an IP Messaging Client/Server configuration.

Services running on this system need to communicate with other systems and devices in order to operate. In the next series of questions, you will be asked for information about these, and for other global parameters.

The SIP default dialing domain is used to construct the SIP URI for outbound SIP requests.

Enter the SIP default dialing domain : 1.1.1.1

You must use the same dialing domain for all servers in a VCX system. 3Com recommends the use of 1.1.1.1 as the dialing domain.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server.

Sample Services Configuration Script — IP Messaging Client (continued)

The primary IP Messaging Service provides voice mail and other messaging services. In some configurations a dedicated IP Messaging Server runs this service.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```
SIP Default Dialing Domain :
    Primary Call Processor :
    Secondary Call Processor :
Primary IP Messaging Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for System -----

Root account password. A blank entry means 'no change'.

```
Password :
Password (confirm) :
```

VCX account password. A blank entry means 'no change'.

```
Password :
Password (confirm) :
```

App account password. A blank entry means 'no change'.

```
Password :
Password (confirm) :
```

Do you wish to change any of the System parameters? [N] :

Sample Services Configuration Script — IP Messaging Client (continued)

----- Configuring additional parameters for IP Messaging Service -----

How many voice ports does this IP Messaging System have?

Number of VoIP ports : 120

Press the Enter or Return key to accept the default value (120).

IP Messaging includes support for Text To Speech (TTS) via one or more external servers. To use this feature you must answer 'Y' here.

Is Text To Speech (TTS) enabled? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script prompts you for the IP address of up to four Text-to-Speech Servers. Each server is a PC running the Windows operating system. If you have entered IP addresses for all of your Text-to-Speech Servers, press the Enter or Return key for all remaining IP address prompts. If you enable Text-to-Speech, you must use the G711u CODEC (the default), not the G729a CODEC.

Do you wish to change any of the IP Messaging Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

Sample Services Configuration Script — IP Messaging Client (continued)

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Sample Services Configuration Script — IP Messaging Client (continued)

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — IP Messaging Client

5

INSTALLING A CALL PROCESSING SERVER

Definition This chapter describes how to install a VCX Call Processing Server which runs these services.

- Call Processor
- SIP Downloader
- Accounting
- Provisioning
- Common Agent

Where Used A Call Processing Server is typically used in regional office configurations. To determine where this server can be used in your configuration, contact your Voice Authorized 3Com Representative.



CAUTION: Before you configure any server, you must first obtain and install a valid license key on that server. If you do not install the license, many software processes that are critical to the proper operation of the server cannot start.

Sample Configuration Scripts The sample configuration scripts in this chapter describe how to configure Primary and Secondary Call Processing Servers in regional offices.

See these sections:

- [Configuring a Primary Call Processing Server](#)
- [Configuring a Secondary Call Processing Server](#)

Configuring a Primary Call Processing Server

To begin the configuration process, enter this command:

vcx-setup

The configuration script starts. The first portion deals with network configuration.

Sample Network Configuration Script — Primary Call Processing Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 5](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Primary Call Processing Server (continued)

----- Configuring IP Interface 'eth1' -----

Interface State : enabled

Change the default value (disabled) to enabled.

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary NTP Server :

Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia

Sample Network Configuration Script — Primary Call Processing Server (continued)

```

6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

```

1. Antigua & Barbuda      18. Ecuador              35. Panama
2. Anguilla              19. Grenada              36. Peru
3. Netherlands Antilles  20. French Guiana        37. St Pierre & Miquelon
4. Argentina             21. Greenland            38. Puerto Rico
5. Aruba                 22. Guadeloupe           39. Paraguay
6. Barbados              23. Guatemala            40. Suriname
7. Bolivia               24. Guyana                41. El Salvador
8. Brazil                25. Honduras             42. Turks & Caicos Is
9. Bahamas              26. Haiti                 43. Trinidad & Tobago
10. Belize               27. Jamaica              44. United States
11. Canada               28. St Kitts & Nevis     45. Uruguay
12. Chile                29. Cayman Islands       46. St Vincent
13. Colombia             30. St Lucia              47. Venezuela
14. Costa Rica           31. Martinique           48. Virgin Islands (UK)
15. Cuba                32. Montserrat           49. Virgin Islands (US)
16. Dominica             33. Mexico
17. Dominican Republic  34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations

```

Sample Network Configuration Script — Primary Call Processing Server (continued)

```

13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

```

Hostname:

```

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

```

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

-----

```

Is all of the above information correct? [yes] :

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Primary Call Processing Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Primary Call Processing Server

```
----- Select System Configuration -----
```

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **3**

Enter 3 to configure this server for Call Processing Services for IP Telephony. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

Call Processing Services for IP Telephony

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'Call Processing Services for IP Telephony' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : yes

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Primary Call Processing Server (continued)

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This server runs Call Processing services for IP Telephony. IP Messaging and Authentication & Directory services are provided on separate servers.

Please enter the role of this system:

- 1 - This is a regional office, primary Call Processing server.
- 2 - This is a regional office, secondary Call Processing server.
- 3 - This server operates standalone.

Enter your choice by number [1] : **1**

Enter 1 to configure this server as the primary server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server.

Sample Services Configuration Script — Primary Call Processing Server (continued)

The primary Authentication & Directory Service is principally responsible for performing authentication, authorization, and certain user-specific functions

IP address of the primary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary Authentication and Directory Server.

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary Authentication and Directory Server.

The primary IP Messaging Service provides voice mail and other messaging services for the system.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

The secondary IP Messaging Service is a backup for voice mail and other messaging services.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Messaging Server.

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the primary way of connecting to the Public Switched Telephone Network (PSTN).

Sample Services Configuration Script — Primary Call Processing Server (continued)

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the secondary way of connecting to the Public Switched Telephone Network (PSTN).

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```

                Site Identifier :
        Secondary Call Processor :
    Primary Auth & Dir Service :
    Secondary Auth & Dir Service :
    Primary IP Messaging Service :
    Secondary IP Messaging Service :
                Primary Media Gateway :
                Secondary Media Gateway :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for Call Processor -----

Trusted Endpoints are allowed to send SIP Notify messages to the Call Processor. Certain Trusted Endpoints are configured automatically. Additional Trusted Endpoints can be entered here. Enter a blank input to indicate that all endpoints have been entered.

Additional Trusted Endpoint IP address

TrustedAddress :

Enter the IP address of any server or device that you want to be included in the list of trusted endpoints. To stop entering trusted endpoints, press the Enter or Return key when prompted for another entry.

Sample Services Configuration Script — Primary Call Processing Server (continued)

CAUTION: Next, the system prompts you to enter the passwords for the Root, Tomcat, Cworks, and VCX accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

```
Trap Destination                             :
```

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Sample Services Configuration Script — Primary Call Processing Server (continued)

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Sample Services Configuration Script — Primary Call Processing Server (continued)

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Primary Call Processing Server

Configuring a Secondary Call Processing Server

To begin the configuration process, enter this command:

vcx-setup

The configuration script starts. The first portion deals with network configuration.

Sample Network Configuration Script — Secondary Call Processing Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 5](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Secondary Call Processing Server (continued)

```
----- Configuring IP Interface 'eth1' -----
```

```
Interface State          : enabled
```

Change the default value (disabled) to enabled.

```
IP Address               :
```

```
Network Subnet Mask     :
```

```
Default Gateway Address :
```

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

```
----- Configuring DNS Servers -----
```

```
Enter DNS servers one at a time.
```

```
When done, enter 0.0.0.0 to stop.
```

```
Primary DNS Server      :
```

```
Secondary DNS Server    :
```

```
Tertiary DNS Server     :
```

Enter up to three DNS server IP addresses.

```
----- Configuring DNS Search Path -----
```

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

```
DNS Search Path :
```

Enter the DNS search path appropriate for this site.

```
----- Configuring Network Time Protocol -----
```

```
Enter NTP servers one at a time.
```

```
When done, enter 0.0.0.0 to stop.
```

```
Primary NTP Server      :
```

```
Secondary NTP Server    :
```

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

```
----- Configuring Time Zone -----
```

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia

Sample Network Configuration Script — Secondary Call Processing Server (continued)

```

6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

1. Antigua & Barbuda	18. Ecuador	35. Panama
2. Anguilla	19. Grenada	36. Peru
3. Netherlands Antilles	20. French Guiana	37. St Pierre & Miquelon
4. Argentina	21. Greenland	38. Puerto Rico
5. Aruba	22. Guadeloupe	39. Paraguay
6. Barbados	23. Guatemala	40. Suriname
7. Bolivia	24. Guyana	41. El Salvador
8. Brazil	25. Honduras	42. Turks & Caicos Is
9. Bahamas	26. Haiti	43. Trinidad & Tobago
10. Belize	27. Jamaica	44. United States
11. Canada	28. St Kitts & Nevis	45. Uruguay
12. Chile	29. Cayman Islands	46. St Vincent
13. Colombia	30. St Lucia	47. Venezuela
14. Costa Rica	31. Martinique	48. Virgin Islands (UK)
15. Cuba	32. Montserrat	49. Virgin Islands (US)
16. Dominica	33. Mexico	
17. Dominican Republic	34. Nicaragua	

Enter country [44] :

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County

Sample Network Configuration Script — Secondary Call Processing Server (continued)

```

12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

Hostname:

IP Interfaces:   Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

```

-----
Is all of the above information correct? [yes] :

```

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Secondary Call Processing Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Secondary Call Processing Server

----- Select System Configuration -----

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **3**

Enter 3 to configure this server for Call Processing Services for IP Telephony. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

Call Processing Services for IP Telephony

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'Call Processing Services for IP Telephony' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : yes

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Secondary Call Processing Server (continued)

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This server runs Call Processing services for IP Telephony. IP Messaging and Authentication & Directory services are provided on separate servers.

Please enter the role of this system:

- 1 - This is a regional office, primary Call Processing server.
- 2 - This is a regional office, secondary Call Processing server.
- 3 - This server operates standalone.

Enter your choice by number [1] : **2**

Enter 2 to configure this server as the secondary server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server.

Sample Services Configuration Script — Secondary Call Processing Server (continued)

The primary Authentication & Directory Service is principally responsible for performing authentication, authorization, and certain user-specific functions

IP address of the primary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary Authentication and Directory Server.

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary Authentication and Directory Server.

The primary IP Messaging Service provides voice mail and other messaging services for the system.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

The secondary IP Messaging Service is a backup for voice mail and other messaging services.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Messaging Server.

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the primary way of connecting to the Public Switched Telephone Network (PSTN).

Sample Services Configuration Script — Secondary Call Processing Server (continued)

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Enter the IP address of the analog or digital media gateway that this VCX server will use as the secondary way of connecting to the Public Switched Telephone Network (PSTN).

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```

                Site Identifier :
            Primary Call Processor :
        Primary Auth & Dir Service :
    Secondary Auth & Dir Service :
        Primary IP Messaging Service :
    Secondary IP Messaging Service :
            Primary Media Gateway :
        Secondary Media Gateway :
```

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for Call Processor -----

Trusted Endpoints are allowed to send SIP Notify messages to the Call Processor. Certain Trusted Endpoints are configured automatically. Additional Trusted Endpoints can be entered here. Enter a blank input to indicate that all endpoints have been entered.

Additional Trusted Endpoint IP address

TrustedAddress :

Enter the IP address of any server or device that you want to be included in the list of trusted endpoints. To stop entering trusted endpoints, press the Enter or Return key when prompted for another entry.

Sample Services Configuration Script — Secondary Call Processing Server (continued)



CAUTION: Next, the system prompts you to enter the passwords for the Root, Tomcat, Cworks, and VCX accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
Cworks account password. A blank entry means 'no change'.
```

```
Password                                     :
Password (confirm)                         :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

```
Trap Destination                             :
```

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Sample Services Configuration Script — Secondary Call Processing Server (continued)

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature.

Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Sample Services Configuration Script — Secondary Call Processing Server (continued)

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Secondary Call Processing Server

6

INSTALLING A CALL RECORDS SERVER

Definition This chapter describes how to install a VCX Call Records Server which runs the Call Records Service.

Where Used A Call Records Server is typically used in regional office configurations. Regardless of the number of regional offices, a Call Records Server is installed in only one regional office. The server gathers call records from all offices so that reports can be generated. To determine where this server can be used in your configuration, contact your Voice Authorized 3Com Representative.

Sample Configuration Scripts In any regional office, the Call Records Server is installed on a single IBM X346 machine. The sample configuration script in this chapter describes how to configure the Call Records Server in any regional office.



CAUTION: Before you configure any server, you must first obtain and install a valid license key on that server. If you do not install the license, many software processes that are critical to the proper operation of the server cannot start.

Configuring a Call Records Server

To begin the configuration process, enter this command:

vcx-setup

The network configuration portion of the script starts.

Sample Network Configuration Script — Call Records Server

```
-----  
----- VCX Network Configuration Utility -----  
-----
```

This wizard sets up networking and related services.

Sample Network Configuration Script — Call Records Server (continued)

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

----- Configuring Dynamic Host Configuration Protocol (DHCP) -----

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

----- Configuring Hostname -----

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in [“Host Names”](#) in [Chapter 6](#).

----- Configuring IP Interface 'eth0' -----

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

----- Configuring IP Interface 'eth1' -----

Interface State : enabled

Change the default value (disabled) to enabled.

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

Sample Network Configuration Script — Call Records Server (continued)

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify
a new search path, with spaces separating each entry.

DNS Search Path :

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.
When done, enter 0.0.0.0 to stop.

Primary NTP Server :
Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia
6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean

Enter continent [2] :

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

- | | | |
|-------------------------|-------------------|--------------------------|
| 1. Antigua & Barbuda | 18. Ecuador | 35. Panama |
| 2. Anguilla | 19. Grenada | 36. Peru |
| 3. Netherlands Antilles | 20. French Guiana | 37. St Pierre & Miquelon |
| 4. Argentina | 21. Greenland | 38. Puerto Rico |
| 5. Aruba | 22. Guadeloupe | 39. Paraguay |
| 6. Barbados | 23. Guatemala | 40. Suriname |
| 7. Bolivia | 24. Guyana | 41. El Salvador |
| 8. Brazil | 25. Honduras | 42. Turks & Caicos Is |
| 9. Bahamas | 26. Haiti | 43. Trinidad & Tobago |
| 10. Belize | 27. Jamaica | 44. United States |

Sample Network Configuration Script — Call Records Server (continued)

11. Canada	28. St Kitts & Nevis	45. Uruguay
12. Chile	29. Cayman Islands	46. St Vincent
13. Colombia	30. St Lucia	47. Venezuela
14. Costa Rica	31. Martinique	48. Virgin Islands (UK)
15. Cuba	32. Montserrat	49. Virgin Islands (US)
16. Dominica	33. Mexico	
17. Dominican Republic	34. Nicaragua	

Enter country [44] :

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time

Enter zone [13] :

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

Sample Network Configuration Script — Call Records Server (continued)

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

Hostname:

IP Interfaces:   Device      IP Address      Network Mask    Default Gateway
                  eth0
                  eth1

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:
-----

```

Is all of the above information correct? [yes] :

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Primary Server

The script displays several status messages and immediately begins the configuration of the system services.

```

----- Select System Configuration -----

Individual systems may provide various services in a VCX installation. You
must select the appropriate set of services which this system is to
provide. Be certain that the selection corresponds to the functionality
you have purchased.

```

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **2**

Sample Services Configuration Script — Call Records Server (continued)

Enter 2 to configure this server for Call Records Services. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

Call Records Service

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'Call Records Service' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This server runs the Call Records Service.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Sample Services Configuration Script — Call Records Server (continued)

Enable the Call Records Service (Y/N)? [N] : **Y**

Enter Y to enable the Call Records Service.

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

Enable Call Records Service : **Y**

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

----- Configuring additional parameters for System -----



CAUTION: Next, the system prompts you to enter the passwords for the Root, Cworks, and VCX accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

Password :

Password (confirm) :

Cworks account password. A blank entry means 'no change'.

Password :

Password (confirm) :

VCX account password. A blank entry means 'no change'.

Password :

Password (confirm) :

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

Sample Services Configuration Script — Call Records Server (continued)

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Sample Services Configuration Script — Call Records Server (continued)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

7

INSTALLING AN AUTHENTICATION AND DIRECTORY SERVER

Definition This chapter describes how to install a VCX Authentication and Directory Server which runs these services:

- Authentication and Directory
- Common Agent

Where Used An Authentication and Directory Server is typically used in regional office configurations. An Authentication and Directory Server is installed in each regional office and provides database services for all elements of the VCX system. To determine where this server can be used in your configuration, contact your Voice Authorized 3Com Representative.

Sample Configuration Scripts An Authentication and Directory Server is installed on an IBM X346 machine. The sample configuration scripts in this chapter describes how to configure a Primary or Secondary Authentication and Directory Server in a regional office.



CAUTION: Before you configure any server, you must first obtain and install a valid license key on that server. If you do not install the license, many software processes that are critical to the proper operation of the server cannot start.

See these sections:

- [Configuring a Primary Authentication and Directory Server](#)
- [Configuring a Secondary Authentication and Directory Server](#)

Configuring a Primary Authentication and Directory Server

To begin the configuration process, enter this command:

vcx-setup

The network configuration portion of the script starts.

Sample Network Configuration Script — Primary Authentication and Directory Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 7](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Primary Authentication and Directory Server (continued)

```
----- Configuring IP Interface 'eth1' -----
Interface State          : enabled
```

Change the default value (disabled) to enabled.

```
IP Address               :
Network Subnet Mask      :
Default Gateway Address  :
```

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

```
----- Configuring DNS Servers -----
```

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

```
Primary DNS Server       :
Secondary DNS Server      :
Tertiary DNS Server      :
```

Enter up to three DNS server IP addresses.

```
----- Configuring DNS Search Path -----
```

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

```
----- Configuring Network Time Protocol -----
```

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

```
Primary NTP Server       :
Secondary NTP Server      :
```

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

```
----- Configuring Time Zone -----
```

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean

Sample Network Configuration Script — Primary Authentication and Directory Server (continued)

```

5. Asia
6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

```

1. Antigua & Barbuda      18. Ecuador              35. Panama
2. Anguilla               19. Grenada              36. Peru
3. Netherlands Antilles  20. French Guiana        37. St Pierre & Miquelon
4. Argentina              21. Greenland            38. Puerto Rico
5. Aruba                  22. Guadeloupe           39. Paraguay
6. Barbados               23. Guatemala            40. Suriname
7. Bolivia                24. Guyana                41. El Salvador
8. Brazil                 25. Honduras             42. Turks & Caicos Is
9. Bahamas                26. Haiti                 43. Trinidad & Tobago
10. Belize                 27. Jamaica              44. United States
11. Canada                 28. St Kitts & Nevis     45. Uruguay
12. Chile                  29. Cayman Islands       46. St Vincent
13. Colombia              30. St Lucia              47. Venezuela
14. Costa Rica            31. Martinique           48. Virgin Islands (UK)
15. Cuba                  32. Montserrat           49. Virgin Islands (US)
16. Dominica              33. Mexico
17. Dominican Republic   34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County

```


Sample Network Configuration Script — Primary Authentication and Directory Server (continued)

```

12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect

```

Hostname:

```

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1

```

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

-----
Is all of the above information correct? [yes] :

```

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Primary Authentication and Directory Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Primary Authentication and Directory Server

```
----- Select System Configuration -----
```

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **4**

Enter 4 to configure this server for Authentication and Directory Services for IP Telephony. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

Authentication and Directory Services for IP Telephony

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'Authentication and Directory Services for IP Telephony' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Primary Authentication and Directory Server (continued)

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This server runs Authentication & Directory services for IP Telephony.

Please enter the role of this system:

- 1 - This is a regional office, primary Authentication & Directory server.
- 2 - This is a regional office, secondary Authentication & Directory server.
- 3 - This server operates standalone.

Enter your choice by number [1] : **1**

Enter 1 to configure this server as the Primary Authentication and Directory server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The site name provides a user-friendly description of a location in a multi-site VCX installation. This may be used to identify a site in certain management interfaces. The site name may be up to 255 characters long and can contain letters, numbers, spaces, underscores, dashes, and colons.

Enter a description for this site :

Enter a site description of your choice.

Sample Services Configuration Script — Primary Authentication and Directory Server (continued)

In a regional office, IP Messaging can be used in two ways. In a Global Messaging configuration, the regional IP Messaging servers are used by the entire organization including branch offices. In a Local Messaging configuration, the regional IP Messaging servers are used only by the regional office, and branches have their own IP Messaging systems. NOTE: A regional office that has no branch offices uses Local Messaging.

Is Global Messaging in use? (Y/N) [N] :

If this VCX system is being configured to have IP Messaging services delivered locally by each branch office IP Messaging Server to users in that branch office, press the Enter or Return key to accept the default answer (N). If IP Messaging Services will be delivered to users throughout the VCX system by IP Messaging Servers in regional offices, enter Y.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server.

The primary Provisioning Service is used for Web based configuration.

IP address of the primary Provisioning Service :

Provisioning tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server.

The secondary Provisioning Service is used for Web based configuration.

IP address of the secondary Provisioning Service :

Provisioning tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server.

Sample Services Configuration Script — Primary Authentication and Directory Server (continued)

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Telephony Server.

The primary IP Messaging Service provides voice mail and other messaging services for the system.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

The secondary IP Messaging Service is a backup for voice mail and other messaging services.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Messaging Server.

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```

Site Identifier :
    Site Name :
Global Messaging In Use :
    Primary Call Processor :
Primary Provisioning Service :
    Secondary Call Processor :
Secondary Provisioning Service :
    Secondary Auth & Dir Service :
    Primary IP Messaging Service :
    Secondary IP Messaging Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

Sample Services Configuration Script — Primary Authentication and Directory Server (continued)

----- Configuring additional parameters for System -----



CAUTION: Next, the system prompts you to enter the passwords for the Root, Oracle, Cworks, and VCX accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                         :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the values, enter Y.

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

```
Login Password                             : *****
Login Password (confirm)                   : *****
```

Previously, the script prompted you to change the login password for the cworks account. If you changed the password, enter the new one. Otherwise, enter the default password.

Sample Services Configuration Script — Primary Authentication and Directory Server (continued)

VCX Authentication & Directory Services can provide support for System Speed Dials. This feature must be enabled only at a single site, and if replication is in use, the setting must be the same on the primary and secondary servers for that site.

Enable System Speed Dial Master? [N] : **Y**

At a regional site, enter Y for the Primary Authentication and Directory Server and remember to answer Y when you configure the associated Secondary Authentication and Directory Server. In supported VCX configurations, the primary and secondary servers are located in different regional offices.

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

Sample Services Configuration Script — Primary Authentication and Directory Server (continued)

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

***Sample Services Configuration Script — Primary Authentication and Directory Server
(continued)***

Please wait while the wizard completes.

*The script now saves all of the configuration parameters, displays several
status messages, and exits.*

***End of Sample Services Configuration Script — Primary Authentication and Directory
Server***

Configuring a Secondary Authentication and Directory Server

To begin the configuration process, enter this command:

vcx-setup

The network configuration portion of the script starts.

Sample Network Configuration Script — Secondary Authentication and Directory Server

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

Press the Enter or Return key to accept the suggested answer (yes).

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [yes] : **no**

Enter no to specify the IP addresses manually.

```
----- Configuring Hostname -----
```

Enter system hostname :

Enter the unqualified name that you want to use for this primary server. Unqualified host names must conform to the rules outlined in ["Host Names"](#) in [Chapter 7](#).

```
----- Configuring IP Interface 'eth0' -----
```

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth0 interface and the subnet mask and default gateway IP address appropriate for this site.

Sample Network Configuration Script — Secondary Authentication and Directory Server (continued)

----- Configuring IP Interface 'eth1' -----

Interface State : enabled

Change the default value (disabled) to enabled.

IP Address :

Network Subnet Mask :

Default Gateway Address :

Enter the IP address for this server's eth1 interface and the subnet mask and default gateway address appropriate for this site.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary DNS Server :

Secondary DNS Server :

Tertiary DNS Server :

Enter up to three DNS server IP addresses.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify a new search path, with spaces separating each entry.

DNS Search Path :

Enter the DNS search path appropriate for this site.

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.

When done, enter 0.0.0.0 to stop.

Primary NTP Server :

Secondary NTP Server :

Enter one or two NTP server IP addresses.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean

Sample Network Configuration Script — Secondary Authentication and Directory Server (continued)

```

5. Asia
6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean
Enter continent [2] :

```

Press the Enter or Return key to accept the default answer (2), or enter the number for your geographic location.

Please select a country from the following list:

```

1. Antigua & Barbuda      18. Ecuador              35. Panama
2. Anguilla               19. Grenada              36. Peru
3. Netherlands Antilles  20. French Guiana       37. St Pierre & Miquelon
4. Argentina              21. Greenland            38. Puerto Rico
5. Aruba                  22. Guadeloupe           39. Paraguay
6. Barbados               23. Guatemala            40. Suriname
7. Bolivia                24. Guyana                41. El Salvador
8. Brazil                 25. Honduras             42. Turks & Caicos Is
9. Bahamas                26. Haiti                 43. Trinidad & Tobago
10. Belize                 27. Jamaica              44. United States
11. Canada                 28. St Kitts & Nevis     45. Uruguay
12. Chile                  29. Cayman Islands       46. St Vincent
13. Colombia              30. St Lucia              47. Venezuela
14. Costa Rica            31. Martinique           48. Virgin Islands (UK)
15. Cuba                  32. Montserrat           49. Virgin Islands (US)
16. Dominica              33. Mexico
17. Dominican Republic    34. Nicaragua
Enter country [44] :

```

Press the Enter or Return key to accept the default answer (44), or enter the number for your country.

Please select a time zone from the following list:

```

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands
6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County

```

Sample Network Configuration Script — Secondary Authentication and Directory Server (continued)

```

12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :
```

Press the Enter or Return key to accept the default answer (13), or enter the number for your time zone.

Selected Time Zone:

The script prints the time zone that you have selected and then prints a summary of the information that you have entered.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled since last save - displayed values may be incorrect
```

Hostname:

```

IP Interfaces:  Device      IP Address      Network Mask    Default Gateway
                eth0
                eth1
```

DNS Servers:

Search Domains:

NTP Servers:

Time Zone:

```

-----
Is all of the above information correct? [yes] :
```

Press the Enter or Return key to accept the default answer (yes). If you want to change any of the information, enter no.

End of Sample Network Configuration Script — Secondary Authentication and Directory Server

The script displays several status messages and immediately begins the configuration of the system services.

Sample Services Configuration Script — Secondary Authentication and Directory Server

```
----- Select System Configuration -----
```

Individual systems may provide various services in a VCX installation. You must select the appropriate set of services which this system is to provide. Be certain that the selection corresponds to the functionality you have purchased.

Which services will this system provide?

1. IP Telephony and IP Messaging Services
2. Call Records Service
3. Call Processing Services for IP Telephony
4. Authentication and Directory Services for IP Telephony
5. IP Telephony Services
6. IP Messaging Services

Enter your choice (1-6) : **4**

Enter 4 to configure this server for Authentication and Directory Services for IP Telephony. The script warns you that the choice cannot be reversed and gives you the opportunity to change your choice.

You have chosen to configure this system to provide:

Authentication and Directory Services for IP Telephony

Note that in order for these services to work, you must have purchased an appropriate license and installed the corresponding license activation key on this system.

*** WARNING *** Once you confirm your selection, you cannot change it.

Are you absolutely certain that you wish to configure this system as an 'Authentication and Directory Services for IP Telephony' server? If you answer 'no' here you can choose an alternative configuration.

Confirm selection? [no] : **yes**

Enter yes to confirm your choice.

Selection confirmed.

The script prints several configuration messages.

Sample Services Configuration Script — Secondary Authentication and Directory Server

```
-----
----- Welcome to the VCX Service Configuration Wizard -----
-----
```

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the suggested answer (Y).

```
----- Configuring VCX Services -----
```

This server runs Authentication & Directory services for IP Telephony.

Please enter the role of this system:

- 1 - This is a regional office, primary Authentication & Directory server.
- 2 - This is a regional office, secondary Authentication & Directory server.
- 3 - This server operates standalone.

Enter your choice by number [1] : **2**

Enter 2 to configure this server as the Secondary Authentication and Directory server.

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter a site ID of your choice.

The site name provides a user-friendly description of a location in a multi-site VCX installation. This may be used to identify a site in certain management interfaces. The site name may be up to 255 characters long and can contain letters, numbers, spaces, underscores, dashes, and colons.

Enter a description for this site :

Enter a site description of your choice.

Sample Services Configuration Script — Secondary Authentication and Directory Server (continued)

In a regional office, IP Messaging can be used in two ways. In a Global Messaging configuration, the regional IP Messaging servers are used by the entire organization including branch offices. In a Local Messaging configuration, the regional IP Messaging servers are used only by the regional office, and branches have their own IP Messaging systems. NOTE: A regional office that has no branch offices uses Local Messaging.

Is Global Messaging in use? (Y/N) [N] :

If this VCX system is being configured to have IP Messaging services delivered locally by each branch office IP Messaging Server to users in that branch office, press the Enter or Return key to accept the default answer (N). If IP Messaging Services will be delivered to users throughout the VCX system by IP Messaging Servers in regional offices, enter Y.

The primary Call Processor has principal responsibility for handling calls.

IP address of the primary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server.

The primary Provisioning Service is used for Web based configuration.

IP address of the primary Provisioning Service :

Provisioning tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Primary Call Processing Server.

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server.

The secondary Provisioning Service is used for Web based configuration.

IP address of the secondary Provisioning Service :

Provisioning tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the Secondary Call Processing Server.

Sample Services Configuration Script — Secondary Authentication and Directory Server (continued)

The primary Authentication & Directory Service is principally responsible for performing authentication, authorization, and certain user-specific functions

IP address of the primary Auth & Dir Service :

Authentication and Directory Service tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Telephony Server.

The primary IP Messaging Service provides voice mail and other messaging services for the system.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Primary IP Messaging Server.

The secondary IP Messaging Service is a backup for voice mail and other messaging services.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary IP Messaging Server.

The script prints a summary of the global parameters that you have entered.

----- Summary of Global Parameters -----

```

Site Identifier :
Site Name :
Global Messaging In Use :
Primary Call Processor :
Primary Provisioning Service :
Secondary Call Processor :
Secondary Provisioning Service :
Primary Auth & Dir Service :
Primary IP Messaging Service :
Secondary IP Messaging Service :
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). If you want to change any of the information, enter Y.

Sample Services Configuration Script — Secondary Authentication and Directory Server (continued)

----- Configuring additional parameters for System -----



CAUTION: Next, the system prompts you to enter the passwords for the Root, Oracle, Cworks, and VCX accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

```
Login Password                               : *****
Login Password (confirm)                     : *****
```

Previously, the script prompted you to change the login password for the cworks account. If you changed the password, enter the new one. Otherwise, enter the default password.

Sample Services Configuration Script — Secondary Authentication and Directory Server (continued)

VCX Authentication & Directory Services can provide support for System Speed Dials. This feature must be enabled only at a single site, and if replication is in use, the setting must be the same on the primary and secondary servers for that site.

Enable System Speed Dial Master? [N] : **Y**

At a regional site, you should have entered Y for the Primary Authentication and Directory Server. Also enter Y here for the Secondary Authentication and Directory Server. In supported VCX configurations, the primary and secondary servers are located in different regional offices.

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

Sample Services Configuration Script — Secondary Authentication and Directory Server (continued)

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

The script now saves all of the configuration parameters, displays several status messages, and exits.

End of Sample Services Configuration Script — Secondary Authentication and Directory Server

8

INSTALLING LANGUAGE PROMPTS

You can install more than one set of language prompts on a VCX System. Use the Administrator Interface to assign an installed set of prompts to any IPMSG mailbox.

Language Prompts Already on Your VCX System

To install a set of language prompts when the prompts package is already on your system, follow the steps in this section. You must install the prompts on both the Primary IP Messaging Server and the Secondary IP Messaging Server.



CAUTION: *You must install the same version of any prompt package on the Primary and Secondary IP Messaging Servers. Installing different versions causes problems.*

Installing Prompts (Primary IP Messaging Server)

The Primary IP Messaging Server may be any of these:

- A regional office server that runs IP Messaging services only
- A regional office server that runs IP Messaging and IP Telephony services
- A server at a single site that runs IP Messaging and IP Telephony services
- A branch office server that runs IP Messaging and IP Telephony services

- 1 Log in as *root* on the Primary IP Messaging Server. The default password is *pvadmin*.



CAUTION: *3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”*

- 2 Enter these commands:

```
cd /opt/3com/VCX/UMS/app/app.dir
./add_language
```

- 3 Answer the questions to install the prompts that you want.

- 4 Stop and restart IPMSG by entering these commands:

```
cd /opt/3com/VCX/UMS/vcx-scripts/init.d
./S60ums stop
./S60ums start
```



To assign a set of language prompts to any IPMSG mailbox, use your browser to log in to the VCX Administrator Interface and follow the instructions in the VCX Administration Guide.

Installing Prompts (Secondary IP Messaging Server)

The Secondary IP Messaging Server may be any of these:

- A regional office server that runs IP Messaging services only
- A regional office server that runs IP Messaging and IP Telephony services
- A server at a single site that runs IP Messaging services
- A server at a single site that runs IP Messaging and IP Telephony services
- A branch office server that runs IP Messaging and IP Telephony services

- 1 Log in as *root* on the Secondary IP Messaging Server. The default password is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/UMS/app/app.dir
./add_language
```

- 3 Answer the questions to install the prompts that you want.

- 4 Stop and restart IPMSG by entering these commands:

```
cd /opt/3com/VCX/UMS/vcx-scripts/init.d
./S60ums stop
./S60ums start
```




To assign a set of language prompts to any IPMSG mailbox, use your browser to log in to the VCX Administrator Interface and follow the instructions in the VCX Administration Guide.

Downloading Language Prompts

To install a set of language prompts if the prompts package is *not* on your system, follow the steps in this section.

Downloading to the Primary IP Messaging Server

The Primary IP Messaging Server may be any of these:

- A regional office server that runs IP Messaging services only
- A regional office server that runs IP Messaging and IP Telephony services
- A server at a single site that runs IP Messaging and IP Telephony services
- A branch office server that runs IP Messaging and IP Telephony services

- 1 Log in as *root* on the Primary IP Messaging Server. The default password is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Log in to the 3Com Partner Access web site and locate the prompt file.
- 3 Download the language RPM file and place it in this directory:

`/opt/installtemp`



Example: The file that contains the UK English prompts and is compatible with a G711 codec is IPMSG-UK-EN-G711u-SPEAK-1-1.i386.rpm. This file name is used in the remaining steps of this procedure. Select the file name that applies to the language and codec that you want. The version numbers within the file (-1-1 in this example) will change over time.

- 4 Enter these commands:

```
cd /opt/installtemp
vcx-install IPMSG-UK-EN-G711u-SPEAK-1-1.i386.rpm
```

- 5 Follow the instructions in [“Language Prompts Already on Your VCX System”](#) earlier in this chapter to install the prompts.



To assign a set of language prompts to any IPMSG mailbox, use your browser to log in to the VCX Administrator Interface, and then follow the instructions in the VCX Administration Guide.



CAUTION: You must install the same version of any prompt package on the Primary and Secondary IP Messaging Servers. Installing different versions causes problems.

Downloading to the Secondary IP Messaging Server

The Secondary IP Messaging Server may be any of these:

- A regional office server that runs IP Messaging services only
- A regional office server that runs IP Messaging and IP Telephony services
- A server at a single site that runs IP Messaging services
- A server at a single site that runs IP Messaging and IP Telephony services
- A branch office server that runs IP Messaging and IP Telephony services

- 1 Log in as *root* on the Secondary IP Messaging Server. The default password is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Log in to the 3Com Partner Access web site and locate the prompt file.
- 3 Download the language RPM file and place it in this directory:

`/opt/installtemp`



Example: The file that contains the UK English prompts and is compatible with a G711 codec is IPMSG-UK-EN-G711u-SPEAK-1-1.i386.rpm. This file name is used in the remaining steps of this procedure. Select the file name that applies to the language and codec that you want. The version numbers within the file (-1-1 in this example) will change over time.

- 4 Enter these commands:

```
cd /opt/installtemp
vcx-install IPMSG-UK-EN-G711u-SPEAK-1-1.i386.rpm
```

- 5 Follow the instructions in [“Language Prompts Already on Your VCX System”](#) earlier in this chapter to install the prompts.



To assign a set of language prompts to any IPMSG mailbox, use your browser to log in to the VCX Administrator Interface, and then follow the instructions in the VCX Administration Guide.



CAUTION: *You must install the same version of any prompt package on the Primary and Secondary IP Messaging Servers. Installing different versions causes problems.*

9

INSTALLING DEVICES

This chapter describes how to install these devices:

- Telephones
 - [3Com 3101 Basic Telephone](#)
 - [3Com 2101 Basic Telephone](#)
 - [3Com 3102 Business Telephone](#)
 - [3Com 2102 Business Telephone](#)
 - [3Com 3103 Manager Telephone](#)
- Software Emulators
 - [3Com Complement Attendant Software \(CAS\)](#)
 - [3Com Call Detail Reporting](#)
- Attendant Consoles
 - [3105 Attendant Console](#)
- Gateways
 - [3Com V7111 Analog Gateways](#)
 - [3Com V7122 Digital Gateways](#)
 - [3Com V6000 Branch Office Solution](#)
- Printers
 - [Adding a Printer](#)
- RAID Disks
 - [Adding a RAID Disk](#)

This chapter also describes [Virtual LAN \(VLAN\) Configuration](#).

Overview

To install a device such as a 3Com Telephone or Attendant Console on a VCX system, you configure the device with these items:

- The IP Address of the Primary VCX Call Processing Server
- The IP Address of the Alternate VCX Call Processing Server
- (Optionally) the VLAN ID of the Virtual LAN on which you want the device to operate

You can provide this configuration information through Option 184 on your DHCP server or you can manually configure each device. For configuration instructions for option 184, see [Appendix A, “Configuring Option 184 on a Windows 2000 DHCP Server”](#). The examples in this chapter assume that option 184 has not been configured.

You can also edit certain configuration files on the VCX system to include all device configuration information.

Telephone Installation

To install a 3Com Basic Telephone or a 3Com Business Telephone, use the Local User Interface (LUI) on the telephone. The LUI allows you to enter configuration information by pressing buttons. You can use the telephone display panel to:

- View existing settings
- Verify changes you have made

3Com 3101 Basic Telephone

The easiest way to install any 3Com telephone assumes that the telephone obtains an IP address from a DHCP server. If your network does not provide IP addresses through a DHCP server, you must manually configure the IP address of the telephone.

Configuring the 3Com 3101 Telephone with a DHCP Server

To configure the 3Com 3101 Basic Telephone:

- 1** Plug one end of a Category 5 Ethernet cable into the connector on the 3101 Basic Telephone.
- 2** Plug the other end of the Ethernet cable into the appropriate data jack on your network.
- 3** Plug the power cord into an AC power receptacle.

- 4 Plug the other end of the power cord into the power connector on the telephone.
- 5 Before the telephone finishes the download of code from the VCX Call Processing Server, press the **Select** button, located in the center of the four arrow buttons.
- 6 Press **5** (Set NCP IP).
- 7 Enter the IP address of the Primary VCX Call Processing Server.
- 8 Press **#** to save the Primary Call Processing Server IP address.



VCX systems typically have two Call Processing servers. One is the primary server and the other is the alternate server, which is available for fail-over purposes.

- 9 Press the **Select** button.
- 10 Press **6** (VCX Cnfig Menu).
- 11 Press **1** (Alt Dnld Dervr).
- 12 Enter the IP address of the Alternate Call Processing Server.
- 13 Press **#** to save the Alternate Call Processing Server IP address.
- 14 Disconnect and reconnect the telephone power cord.

The telephone:

- Obtains an IP address from a DHCP in your network.
- Contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message "Local Phone Number:" appears.

After the telephone finishes the download process, enter the dialing domain for the telephone.

- 1 Press the **Select** button, located in the center of the four arrow buttons.
- 2 Press **5** (Advanced Settings).
- 3 Press **3** (Set Dialing Domain).
- 4 Enter the default dialing domain (**001.001.001.001**).
- 5 Press the **#** key to save the dialing domain setting.

To log in on the telephone, a user enters:

- An extension number, followed by #
- A numeric password, followed by #



To assign a telephone extension to a user, you must configure the telephone extension number and user ID using the VCX Administrator User Interface. For information about how to perform these tasks, see the VCX Administration Guide.

Configuring the 3Com 3101 Telephone Without a DHCP Server

If your network does not use a DHCP server to provide IP addresses to devices, you must manually configure the IP address of the 3Com 3101 Basic Telephone.

- 1 Configure the telephone as described in [“Configuring the 3Com 2101 Telephone with a DHCP Server”](#) earlier in this chapter.

Then:

- 2 Press the **Select** button, located in the center of the four arrow buttons.
- 3 Press **2** (Set My IP).
- 4 Enter the IP address that you want to assign to the telephone.
- 5 Press **#** to save the new setting.
- 6 Press **3** (Set SubNMsk).
- 7 Enter the subnetwork mask appropriate for the subnetwork to which the telephone is connected.
- 8 Press **#** to save the new setting.
- 9 Press **4** (Set GatwylP).
- 10 Enter the IP address of the gateway for this subnetwork.
- 11 Press **#** to save the new setting.
- 12 Disconnect and reconnect the telephone power cord.

The telephone contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message “Local Phone Number:” appears.

To log in on the telephone, a user enters:

- An extension number, followed by #
- A numeric password, followed by #



To assign a telephone extension to a user, you must configure the telephone extension number and user ID using the VCX Administrator User Interface. For information about how to perform these tasks, see the VCX Administration Guide.

3Com 2101 Basic Telephone

The easiest way to install any 3Com telephone assumes that the telephone obtains an IP address from a DHCP server. If your network does not provide IP addresses through a DHCP server, you must manually configure the IP address of the telephone.

Configuring the 3Com 2101 Telephone with a DHCP Server

To configure the 3Com 2101 Basic Telephone:

- 1 Plug one end of a Category 5 Ethernet cable into the connector on the 3101 Basic Telephone.
- 2 Plug the other end of the Ethernet cable into the appropriate data jack on your network.
- 3 Plug the power cord into an AC power receptacle.
- 4 Plug the other end of the power cord into the power connector on the telephone.
- 5 Press the **Msg** (message) button, located below the up and down arrow buttons.
- 6 Press **5** (Set NCP IP).
- 7 Enter the IP address of the Primary VCX Call Processing Server.
- 8 Press **#** to save the Primary Call Processing Server setting.



VCX systems typically have two Call Processing servers. One is the primary server and the other is the alternate server, which is available for fail-over purposes.

- 9 Press the **Msg** (message) button.
- 10 Press **6** (VCX Cnfig Menu).
- 11 Press **1** (Alt Dnld Servr).
- 12 Enter the IP address of the Alternate Call Processing Server.

- 13 Press **#** to save the Alternate Call Processing Server setting.
- 14 Disconnect and reconnect the telephone power cord.

The telephone:

- Obtains an IP address from a DHCP in your network.
- Contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message "Local Phone Number:" appears.

After the telephone finishes the download process, enter the dialing domain for the telephone.

- 1 Press the **Msg** button, located in the center of the four arrow buttons.
- 2 Press **5** (Advanced Settings).
- 3 Press **3** (Set Dialing Domain).
- 4 Enter the default dialing domain (**001.001.001.001**).
- 5 Press the **#** key to save the dialing domain setting.

To log in on the telephone, a user enters:

- An extension number, followed by **#**
- A numeric password, followed by **#**



To assign a telephone extension to a user, you must configure the telephone extension number and user ID using the VCX Administrator User Interface. For information about how to perform these tasks, see the VCX Administration Guide.

Configuring the 3Com 2101 Telephone Without a DHCP Server

If your network does not use a DHCP server to provide IP addresses to devices, you must manually configure the IP address of the 3Com 2101 Basic Telephone.

- 1 Configure the telephone as described in ["Configuring the 3Com 2101 Telephone with a DHCP Server"](#) earlier in this section.
- 2 Press the **Msg** (message) button, located below the up and down arrow buttons.

- 3 Press **2** (Set My IP).
- 4 Enter the IP address that you want to assign to the telephone.
- 5 Press **#** to save the new setting.
- 6 Press **3** (Set SubNMsk).
- 7 Enter the subnetwork mask appropriate for the subnetwork to which the telephone is connected.
- 8 Press **#** to save the new setting.
- 9 Press **4** (Set GatwylP).
- 10 Enter the IP address of the gateway for this subnetwork.
- 11 Press **#** to save the new setting.
- 12 Disconnect and reconnect the telephone power cord.

The telephone contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message "Local Phone Number:" appears.

To log in on the telephone, a user enters:

- An extension number, followed by #
- A numeric password, followed by #



To assign a telephone extension to a user, you must configure the telephone extension number and user ID using the VCX Administrator User Interface. For information about how to perform these tasks, see the VCX Administration Guide.

3Com 3102 Business Telephone

The easiest way to install any 3Com telephone assumes that the telephone obtains an IP address from a DHCP server. If your network does not provide IP addresses through a DHCP server, you must manually configure the IP address of the telephone.

Configuring the 3102 Telephone with a DHCP Server

To configure the 3Com 3102 Business Telephone:

- 1 Plug one end of a Category 5 Ethernet cable into the connector on the 3101 Basic Telephone.
- 2 Plug the other end of the Ethernet cable into the appropriate data jack on your network.
- 3 Plug the power cord into an AC power receptacle.
- 4 Plug the other end of the power cord into the power connector on the telephone.
- 5 Press the **Program** button, located at the top of the row of buttons on the right side of the telephone.
- 6 Press **5** (Set NCP IP).
- 7 Enter the IP address of the Primary VCX Call Processing Server.



VCX systems typically have two Call Processing servers. One is the primary server and the other is the alternate server, which is available for fail-over purposes.

- 8 Press **#** to save the new setting.
- 9 Press the **Program** button.
- 10 Press **6** (VCX Cnfig Menu).
- 11 Press **1** (Alt Dnld Servr).
- 12 Enter the IP address of the Alternate Call Processing Server.
- 13 Press **#** to save the new setting.
- 14 Disconnect and reconnect the telephone power cord.

The telephone:

- Obtains an IP address from a DHCP in your network.
- Contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message "Local Phone Number:" appears.

After the telephone finishes the download process, enter the dialing domain for the telephone.

- 1 Press the **Program** button, located in the center of the four arrow buttons.
- 2 Press **5** (Advanced Settings).
- 3 Press **3** (Set Dialing Domain).
- 4 Enter the default dialing domain (**001.001.001.001**).
- 5 Press the **#** key to save the dialing domain setting.

To log in on the telephone, a user enters:

- An extension number, followed by #
- A numeric password, followed by #



To assign a telephone extension to a user, you must configure the telephone extension number and user ID using the VCX Administrator User Interface. For information about how to perform these tasks, see the VCX Administration Guide.

Configuring the 3Com 3102 Telephone Without a DHCP Server

If your network does not use a DHCP server to provide IP addresses to devices, you must manually configure the IP address of the 3Com 3102 Business Telephone.

- 1 Configure the telephone as described in ["Configuring the 3102 Telephone with a DHCP Server"](#) earlier in this section.
- 2 Press the **Program** button, located at the top of the row of buttons on the right side of the telephone.
- 3 Press **2** (Set My IP).
- 4 Enter the IP address that you want to assign to the telephone.
- 5 Press **#** to save the new setting.
- 6 Press **3** (Set SubNMsk).
- 7 Enter the subnetwork mask appropriate for the subnetwork to which the telephone is connected.
- 8 Press **#** to save the new setting.
- 9 Press **4** (Set GatwyIP).
- 10 Enter the IP address of the gateway for this subnetwork.

- 11 Press **#** to save the new setting.
- 12 Disconnect and reconnect the telephone power cord.

The telephone contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message "Local Phone Number:" appears.

To log in on the telephone, a user enters:

- An extension number, followed by **#**
- A numeric password, followed by **#**

3Com 2102 Business Telephone

The easiest way to install any 3Com telephone assumes that the telephone obtains an IP address from a DHCP server. If your network does not provide IP addresses through a DHCP server, you must manually configure the IP address of the telephone.

Configuring the 3Com 2102 Telephone with a DHCP Server

To configure the 3Com 2102 Business Telephone:

- 1 Plug one end of a Category 5 Ethernet cable into the connector on the 3101 Basic Telephone.
- 2 Plug the other end of the Ethernet cable into the appropriate data jack on your network.
- 3 Plug the power cord into an AC power receptacle.
- 4 Plug the other end of the power cord into the power connector on the telephone.
- 5 Press the **Program** button, located below the up and down arrow buttons.
- 6 Press **5** (Set NCP IP).
- 7 Enter the IP address of the Primary VCX Call Processing Server.
- 8 Press **#** to save the Primary Call Processing Server IP address.



VCX systems typically have two Call Processing servers. One is the primary server and the other is the alternate server, which is available for fail-over purposes.

- 9 Press the **Program** button.

- 10 Press **6** (VCX Cnfig Menu).
- 11 Press **1** (Alt Dnld Svr).
- 12 Enter the IP address of the Alternate Call Processing Server.
- 13 Press **#** to save the Alternate Call Processing Server setting.
- 14 Connect the Ethernet data cable to the telephone.
- 15 Disconnect and reconnect the telephone power cord.

The telephone:

- Obtains an IP address from a DHCP in your network.
- Contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message "Local Phone Number:" appears.

After the telephone finishes the download process, enter the dialing domain for the telephone.

- 1 Press the **Program** button, located below the up and down arrow buttons.
- 2 Press **5** (Advanced Settings).
- 3 Press **3** (Set Dialing Domain).
- 4 Enter the default dialing domain (**001.001.001.001**).
- 5 Press the **#** key to save the dialing domain setting.

To log in on the telephone, a user enters:

- An extension number, followed by **#**
- A numeric password, followed by **#**



To assign a telephone extension to a user, you must configure the telephone extension number and user ID using the VCX Administrator User Interface. For information about how to perform these tasks, refer to the VCX Administration Guide.

Configuring the 3Com 2102 Telephone Without a DHCP Server

If your network does not use a DHCP server to provide IP addresses to devices, you must manually configure the IP address of the 3Com 2102 Business Telephone.

- 1 Configure the telephone as described in [“Configuring the 3Com 2102 Telephone with a DHCP Server”](#) earlier in this section, but do *not* disconnect and reconnect the power as described in the final step.
- 2 Press the **Program** button, located below the up and down arrow buttons.
- 3 Press **2** (Set MY IP).
- 4 Enter the IP address that you want to assign to the telephone.
- 5 Press **#** to save the IP address.
- 6 Press **3** (Set SubNMsk).
- 7 Enter the subnetwork mask appropriate for the subnetwork to which the telephone is connected.
- 8 Press **#** to save the subnetwork mask.
- 9 Press **4** (Set GatwylP).
- 10 Enter the IP address of the gateway for this subnetwork.
- 11 Press **#** to save the gateway address.
- 12 Disconnect and reconnect the telephone power cord.

The telephone contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message “Local Phone Number:” appears.

To log in on the telephone, a user enters:

- An extension number, followed by #
- A numeric password, followed by #

3Com 3103 Manager Telephone

The easiest way to install any 3Com telephone assumes that the telephone obtains an IP address from a DHCP server. If your network does not provide IP addresses through a DHCP server, you must manually configure the IP address of the telephone.

Configuring the 3103 Telephone with a DHCP Server

To configure the 3Com 3103 Manager Telephone:

- 1 Plug one end of a Category 5 Ethernet cable into the connector on the 3103 Manager Telephone.
- 2 Plug the other end of the Ethernet cable into the appropriate data jack on your network.
- 3 Plug the power cord into an AC power receptacle.
- 4 Plug the other end of the power cord into the power connector on the telephone.
- 5 Press the bottom button in the group of three buttons that are located on the right side of the telephone display panel.
- 6 Use the up and down arrow buttons to scroll through the list of options.
- 7 When the selection dot is beside **Set Primary PBX IP**, press the **Select** button, located below the word Select in the display panel.
- 8 Enter the IP address of the Primary VCX Call Processing Server.



VCX systems typically have two Call Processing servers. One is the primary server and the other is the alternate server, which is available for fail-over purposes.

- 9 Press **#** to save the new setting.
- 10 Press the bottom button in the group of three buttons that are located on the right side of the telephone display panel.
- 11 Use the up and down arrow buttons to scroll through the list of options.
- 12 When the selection dot is beside **Set Secondary PBX IP**, press the **Select** button, located below the word Select in the display panel.
- 13 Enter the IP address of the Secondary VCX Call Processing Server.
- 14 Press **#** to save the new setting.
- 15 Disconnect and reconnect the telephone power cord.

The telephone:

- Obtains an IP address from a DHCP in your network.
- Contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message “Local Phone Number:” appears.

After the telephone finishes the download process, enter the dialing domain for the telephone.

- 1 Press the bottom button in the group of three buttons that are located on the right side of the telephone display panel.
- 2 Use the up and down arrow buttons to scroll through the list of options.
- 3 When the selection dot is beside **Set Dialing Domain**, press the **Select** button, located below the word Select in the display panel.
- 4 Enter the default dialing domain (**001.001.001.001**).
- 5 Press the **#** key to save the dialing domain setting.

To log in on the telephone, a user enters:

- An extension number, followed by **#**
- A numeric password, followed by **#**



To assign a telephone extension to a user, you must configure the telephone extension number and user ID using the VCX Administrator User Interface. For information about how to perform these tasks, see the VCX Administration Guide.

Configuring the 3Com 3103 Telephone Without a DHCP Server

If your network does not use a DHCP server to provide IP addresses to devices, you must manually configure the IP address of the 3Com 3103 Manger Telephone.

- 1 Configure the telephone as described in [“Configuring the 3103 Telephone with a DHCP Server”](#) earlier in this section.
- 2 Configure the IP address for the telephone.
 - a Press the **Feature** button located under the word Feature in the telephone display panel.
 - b Use the up and down arrow buttons to scroll through the list of options.
 - c When the selection dot is beside **User Configurations**, press the **Select** button, located below the word Select in the display panel.

- d Use the up and down arrow buttons to scroll through the list of options.
 - e When the selection dot is beside **Configure IP Address**, press the **Select** button, located below the word Select in the display panel.
 - f Enter the IP address that you want to assign to the telephone.
 - g To save the new setting, press the **Save** button, located below the word Save in the display panel.
- 3 Configure the Subnet mask for the network segment to which the telephone is connected.
 - a Press the **Feature** button located under the word Feature in the telephone display panel.
 - b Use the up and down arrow buttons to scroll through the list of options.
 - c When the selection dot is beside **User Configurations**, press the **Select** button, located below the word Select in the display panel.
 - d Use the up and down arrow buttons to scroll through the list of options.
 - e When the selection dot is beside **Configure Subnet Mask**, press the **Select** button, located below the word Select in the display panel.
 - f Enter the subnetwork mask appropriate for the subnetwork to which the telephone is connected.
 - g To save the new setting, press the **Save** button, located below the word Save in the display panel.
- 4 Configure the gateway address for the network segment to which the telephone is connected.
 - a Press the **Feature** button located under the word Feature in the telephone display panel.
 - b Use the up and down arrow buttons to scroll through the list of options.
 - c When the selection dot is beside **User Configurations**, press the **Select** button, located below the word Select in the display panel.
 - d Use the up and down arrow buttons to scroll through the list of options.

- e When the selection dot is beside **Configure Gateway IP Address**, press the **Select** button, located below the word Select in the display panel.
 - f Enter the IP address of the gateway for the network segment to which the telephone is connected.
 - g To save the new setting, press the **Save** button, located below the word Save in the display panel.
- 5 Disconnect and reconnect the telephone power cord.

The telephone contacts the Primary Call Processing Server and begins to download the appropriate software.



During the downloading process, several progress messages appear in the telephone display panel. After the software has been downloaded to the telephone, the message "Local Phone Number:" appears.

To log in on the telephone, a user enters:

- An extension number, followed by #
- A numeric password, followed by #

Software Application Installation

3Com Complement Attendant Software

The Complement Attendant Console is a software application that you install on a PC that is running Windows 98, Windows 2000, or Windows XP software. After the software has been installed, you must configure the IP parameters so that the software can connect to the VCX Call Processing Server.

For additional information about using the Complement Attendant Software, see the Help provided within the application.

To install the Complement Attendant Software on a PC:

- 1 Download the appropriate file from the 3Com Partner Access web site and save it in a directory that you choose.
- 2 Double click the VCXCAS.exe file to start the installation wizard.
- 3 Follow the prompts to install the software.



To configure the Complement Attendant Software after you have installed it, see the VCX Administration Guide and the CAS Help.

3Com Call Detail Reporting

To create call reports from the database, install the Call Detail Reporting software on a PC that is running Windows 98, Windows 2000, or Windows XP software.

To install the Call Detail Reporting software on a PC:

- 1** Download the appropriate file from the 3Com Partner Access web site and save it in a directory that you choose.
- 2** Double click the VCXCDR.exe file to start the installation wizard.
- 3** Follow the prompts to install the software.



To configure the Call Detail Reporting software after you have installed it, see the VCX Administration Guide and the CDR Help.

Attendant Console Installation

3Com 3105 Attendant Console

The easiest way to install a 3Com 3105 Attendant Console assumes that the device obtains an IP address from a DHCP server. If your network does not provide IP addresses through a DHCP server, you must manually configure the IP address of the Attendant Console.



To configure a 3Com 3105 Attendant Console, you must have an adapter that connects to a male 9-pin (DB9) serial port on your PC and has an RJ-45 port that accepts an Ethernet cable.

This table shows the pinouts:

Table 9 DB9 to RJ45 Adapter Cable Pin Assignments

DB9 Pin #	RJ45 Pin #	Function
1	2	DCD
2	5	RXD
3	6	TXD
4	3	DTR
5	4	GND
6	No connection	No connection
7	No connection	No connection
8	7	CTS
9	1	RI

Configuring the 3105 Attendant Console Without a DHCP Server

To configure the 3Com 3105 Attendant Console:

- 1 Plug a standard Ethernet cable into the data port, located on the underside of the console.
- 2 Plug the other end of the Ethernet cable into an active network jack.
- 3 Using an RJ45 to DB9 adapter cable (see [Table 9](#), earlier in this chapter for the pin assignments) and a standard Ethernet cable, connect a serial port on your PC to the serial port on the underside of the 3105 Attendant Console.

- 4 Connect a 3Com power adapter to an AC power outlet.
- 5 Connect the other end of the power adapter cable to the power connector on the underside of the 3105 Attendant Console.
- 6 Use a terminal emulation program such as Hyperterm to connect to the serial port on your PC. The configuration is:
 - 9600 baud
 - 8 data bits
 - 1 stop bit
 - No parity
 - No flow control

- 7 In the Hyperterm window, enter this command to set the IP address of the Primary VCX Server:

nbxSetNcpIpAddress 10.20.30.41



All IP addresses and subnetwork masks used here are examples only. You must use values appropriate for your network.

- 8 Enter this command to set the IP address of the Secondary VCX Server:

vcxSetAltCallPIP 10.20.30.42

- 9 Enter this command to set the dialing domain for the Attendant Console:

vcxSetDialDomain 1.1.1.1

- 10 If a DHCP server does *not* provide IP addresses on your network, enter these commands:

To assign an IP address that you select to the Attendant Console:

nbxSetIpAddress 192.168.10.101

To define the subnetwork mask for this subnetwork:

nbxSetSubnetMask 255.255.255.0

To define the IP address for the gateway on this subnetwork:

nbxSetGatewayAddress 192.168.10.254



To verify the current settings use the vcxShowConfig command.

- 11 Enter this command to restart the Attendant Console:

nbxReset

The Attendant Console communicates with the Primary VCX Server. Use the Administrator Interface to:

- Verify that the Attendant Console has been discovered by the VCX system
- Perform the remaining configuration of the Attendant Console
- Associate the Attendant Console with a particular phone

For instructions on how to perform these tasks, see the *VCX Administration Guide*.

Gateway Installation

3Com V7111 Analog Gateways

V7111 Analog Gateways connect the VCX system in two directions:

- FXO versions connect to analog trunk lines from the Public Switched Telephone Network (PSTN).
- FXS versions connect to analog telephones or fax machines.

There are 4-port and 8-port FXO versions of the V7111.

There are 2-port, 4-port, and 8-port FXS versions of the V7111.

To configure any V7111 analog gateway, use a browser to connect to the gateway. Read and follow the instructions in the *3Com VCX V7111 Fast Track Installation Guide*.



You may need to configure the IP settings on your PC to initially connect to the gateway. After you have connected, use the browser interface to configure the IP settings of the gateway to conform to your network and connect the gateway to the VCX Call Processing Server.

FXS Gateways		
Default IP Address	10.1.10.11	10.1.10.10
Default Subnetwork Mask	255.255.0.0	255.255.0.0
Default Network Gateway IP Address	10.1.10.254	10.1.10.254

3Com V7122 Digital Gateways

V7122 Digital Gateways connect the VCX system to digital (T1) services from the Public Switched Telephone Network (PSTN). Different models of the V7122 gateway provide connection to 1, 2, 4, 8, or 16 T1 trunks.

To configure any V7122 digital gateway, use a browser to connect to the gateway. Read and follow the instructions in the *3Com VCX V7122 Fast Track Installation Guide*, which comes with the unit.



You may need to configure the IP settings on your PC to initially connect to the gateway. After you have connected, use the browser interface to configure the IP settings of the gateway to conform to your network and connect the gateway to the VCX Call Processing Server.

For each digital gateway:

- The default IP address for trunks 1 through 8 is 10.1.10.10
- The default IP address for trunks 9 through 16 is 10.1.10.11
- The default subnet mask for all trunks is 255.255.0.0
- The default IP address for the network gateway is 10.1.10.254

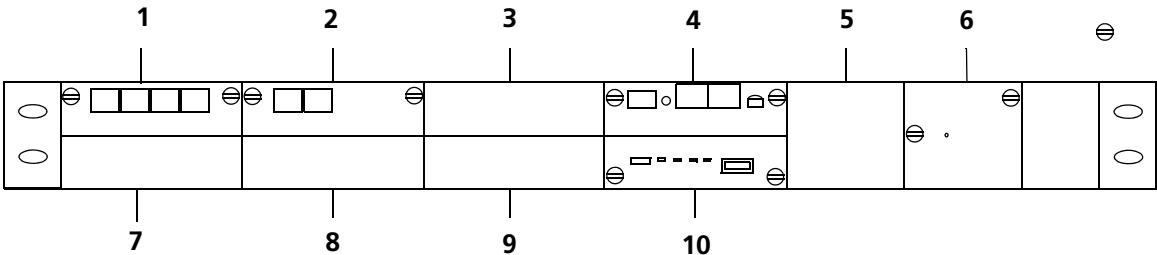
3Com V6000 Branch Office Solution

The 3Com V6000 Branch Office Solution provides VCX call processing capability and IP Messaging services along with up to 24 analog (Media Gateway) connections for a branch office environment. The VCX processor and the Media Gateway are separate functional units housed in the same chassis. The VCX processor and the Media Gateway must be configured separately.

The analog connections can be either FXO or FXS:

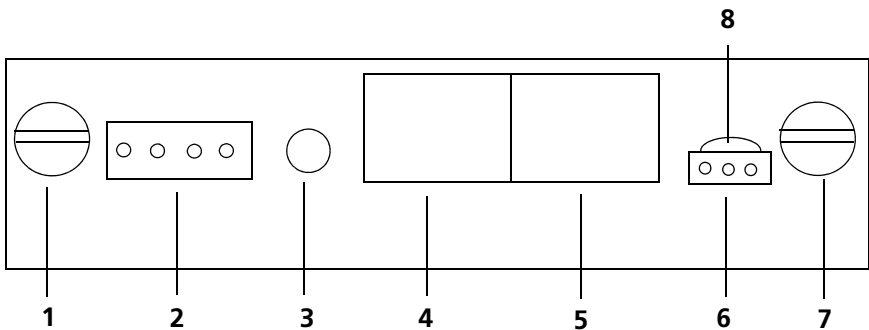
- FXO versions connect to analog trunk lines from the Public Switched Telephone Network (PSTN).
- FXS versions connect to analog telephones, fax machines, analog modems, and door intercoms/openers.

Figure 1 V6000 Front Panel



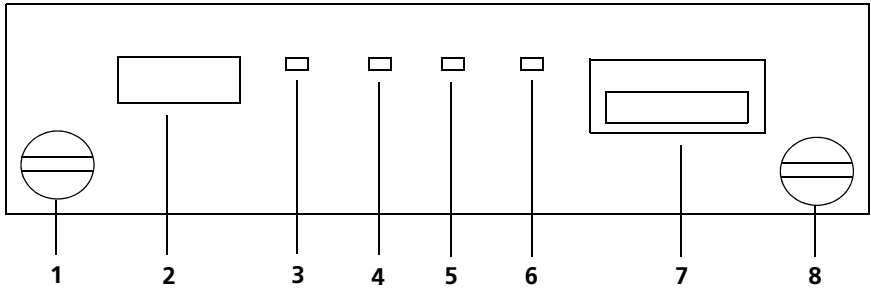
	Description
1	Four port FXS module
2	Two port FXO module
3	Expansion slot (FXO or FXS)
4	CPU module (see Figure 2 for an expanded view)
5	Expansion slot (power)
6	Power module
7	Expansion slot (FXO or FXS)
8	Expansion slot (FXO or FXS)
9	Expansion slot (FXO or FXS)
10	Connections module (see Figure 3 for an expanded view)

Figure 2 CPU Module — Expanded View



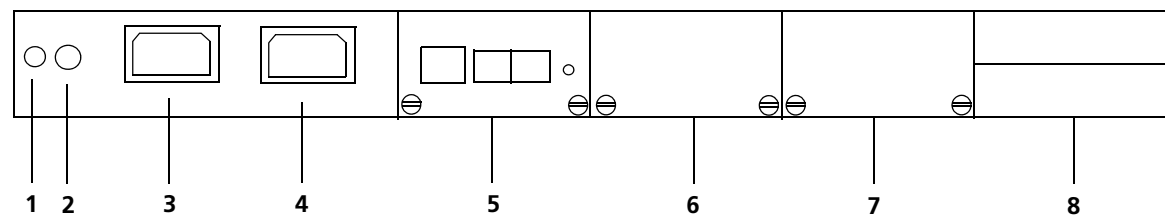
Item	Description
1	Locking screw
2	Dry contact ports (2)
3	Audio In/Out
4	10/100 Ethernet port (has activity and link status lights)
5	10/100 Ethernet port (has activity and link status lights)
6	RS-232 port
7	Locking screw
8	Reset button access (button is located behind the front panel)

Figure 3 Connection Module — Expanded View



Description	
1	Locking screw
2	RS-232 serial port, Molex three-pin connector
3	General purpose status light
4	Activity/status light for disk 0
5	Activity/status light for disk 1
6	Power status light
7	USB connector (type A)
8	Locking screw

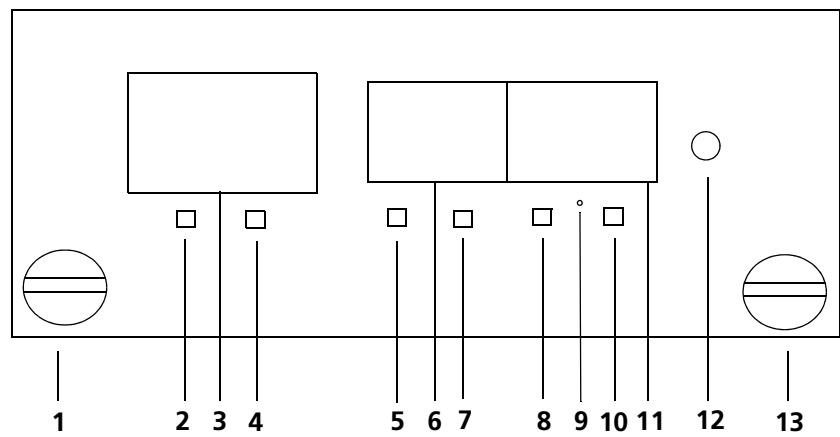
Figure 4 V6000 Rear Panel



Description

- 1 Ground/Earth connection
- 2 ESD (Electrostatic Discharge) connection port
- 3 Power connector
- 4 Power connector (used only if the unit has two power supplies)
- 5 iPMX module (see [Figure 5](#) for an expanded view)
- 6 Disk drive module 0
- 7 Disk drive module 1
- 8 Reserved for future use

Figure 5 iPMX Module — Expanded View



Description

- | | |
|-----------|--|
| 1 | Locking screw |
| 2 | Status light (Ethernet activity) |
| 3 | 10/100 Ethernet port |
| 4 | Status light (Ethernet link status) |
| 5 | Status light (general purpose) |
| 6 | RJ-11 connector used for night bell relay output |
| 7 | Status light (disk 1) |
| 8 | Status light (disk 0) |
| 9 | Reset button access (button is located behind the front panel) |
| 10 | CPU run status light |
| 11 | RJ-11 connector (voice + PTT control) used for paging output |
| 12 | 3.5 mm stereo mini jack connector used as an input for Music-on-Hold |
| 13 | Locking Screw |

Configuring the Media Gateway Network Parameters

To connect the V6000 to the Public Switched Telephone Network (PSTN), analog telephones, fax machines, and your company's data network, follow the instructions in this section.

- 1** Mount the V6000 in a 19-inch cabinet using the mounting brackets that are supplied, or place the V6000 on a desktop.
- 2** Connect the Media Gateways portion of the V6000.
 - a** Connect an Ethernet cable (RJ-45 connector) to the Ethernet connector that is located on the CPU module on the front panel.
 - b** Connect the other end of the Ethernet cable to your network.
 - c** The V6000 may have one or two power supplies. Connect one or both supplies to a power source using the power cables supplied with the unit.
 - d** Verify that, after a self-test period of approximately two minutes, the status light (LED) on the front panel of the power supply turns green.
- 3** Assign an IP address to the Media Gateways portion of the V6000.
 - a** Disconnect the Ethernet cable from the Ethernet connector that is located on the CPU module on the front panel.
 - b** Connect a crossover Ethernet cable to the Ethernet port on a PC that is not connected to your network.

- c Configure the network parameters of the PC port so that the PC can communicate with the Media Gateway portion of the V6000. The gateway has these default settings:

- **IP Address:** 10.1.10.10
- **Subnet Mask:** 255.255.255.0
- **Default Gateway:** 0.0.0.0

- d Open a browser on the PC and enter the IP address of the gateway portion of the V6000.

- e Enter the default user name and password (Admin, Admin).



Both user name and password are case sensitive.

- f Click **Quick Setup** and change the IP Address, Subnet Mask, and Default Gateway address to the settings that you want the gateway to have when you connect it to your network.

- g Click the **Reset** button.

- h In the confirmation window that appears, click **OK**.

- i While the gateway is rebooting, disconnect the Ethernet crossover cable from the front panel and reconnect the original Ethernet cable.



At any time during the network configuration process, you can reset the V6000 Media Gateway to the original factory settings. To do so, press the reset button and hold it for a minimum of 6 seconds. The reset button is located inside the front panel of the CPU module. A semi-circular opening, located directly above the serial port provides access to the reset button.



CAUTION: Use a non-conducting probe to press the reset button in order to avoid contact between the chassis and any of the pins in the serial port.

Configuring an FXO Media Gateway

FXO gateways connect the V6000 to the telephone company's analog lines. To configure an FXO port on a V6000:

- 1 Log in to the Media Gateway using the IP address, user name, and password that you previously configured.
- 2 Click Quick Setup. The Quick Setup screen appears. See [Figure 6](#).

Figure 6 Quick Setup Screen

Quick Setup

IP Configuration

IP Address

10.13.77.7

NAT IP Address

0.0.0.0

Subnet Mask

255.255.0.0

Default Gateway IP Address

10.13.0.1

SIP Parameters

Gateway Name

Working with Proxy

No

Proxy IP Address

10.13.8.10

Proxy Name

10.13.8.10

Enable Registration

No

Coder Name

(msec)

☒ 1st Coder

g711Ulaw64k

20

Tables

Tel to IP Routing Table

-->

Endpoint Phone Number Table

-->

- 3 Click the arrow button located to the right of *Endpoint Phone Number Table*. The Endpoint Phone Number Table screen appears. See [Figure 7](#).

Figure 7 Endpoint Phone Number Table

Endpoint Phone Number Table				
Module		Channel(s)	Phone Number	
1	1	1-4	101	
2	2	1-2	201	
3	2			
4	2			
5	2			
6	2			

- 4 Edit the first row, which corresponds to the 4-port FXS module.

- a In the **Channel(s)** column, enter 1-4 to indicate that there are four channels available.
 - b In the **Phone Number** column, enter the extension that you want to assign to the first channel. In the sample shown, extension 101 will be assigned to the first channel and extensions 102, 103, and 104 will be assigned to the remaining three channels.
- 5 Edit the second row, which corresponds to the 2-port FXO module.
- a In the **Channel(s)** column, enter 1-2 to indicate that there are two channels available.
 - b In the **Phone Number** column, enter the extension that you want to assign to the first channel. In the sample shown, extension 201 will be assigned to the first channel and extensions 202 will be assigned to the second channel.
- 6 Click the **Submit** button.
- 7 Click **Quick Setup** to return to the Quick Setup screen.
- 8 In the Quick Setup screen, click the arrow button that is located to the right of **Tel to IP Routing Table**. The Tel to IP Routing Table screen appears. See [Figure 8](#).

Figure 8 Tel to IP Routing Table

	Dest. Phone Prefix	Source Phone Prefix	Dest. IP Address	Profile ID	Status
1	10	*	10.33.24.14		OK
2	20	*	10.33.24.14		OK
3					
4					

- 9 Edit the first row to create a route for telephone extensions that begin with the digits 10.
- a In the **Dest. Phone Prefix** column, enter 10.
 - b In the **Source Phone Prefix** column, enter an asterisk (*). The asterisk is a wildcard character that indicates that any telephone extension can dial extensions that begins with 10.
 - c In the **Dest. IP Address** column, enter the IP address that you previously assigned to this Media Gateway.
- 10 Edit the second row to create a route for extensions that begin with the digits 20.

- a In the **Dest. Phone Prefix** column, enter 20.
 - b In the **Source Phone Prefix** column, enter an asterisk.
 - c In the **Dest. IP Address** column, enter the IP address of the Media Gateway.
 - d Click the **Submit** button.
 - e Click **Quick Setup** to return to the **Quick Setup** screen.
- 11 Connect ports on the FXS module to analog telephones, fax machines, analog modems, and so on.
 - 12 Connect ports on the FXO module to analog telephone lines from your telephone company's PBX.

Post-Configuration Steps

After you configure the FXO and FXS gateways in the V6000, perform these additional steps:

- 1 On the IP Telephony and Messaging Server in branch office, configure the IP address of the Media Gateway as a trusted endpoint. For instructions, see [“Adding Trusted Endpoints”](#) in [Chapter 11](#).
- 2 On the VCX Call Processing Server in the regional office, configure the IP address of the Media Gateway as a trusted endpoint. For instructions, see [“Adding Trusted Endpoints”](#) in [Chapter 11](#).
- 3 Enable **Registration** on the Media Gateway.
 - a Open a browser on your PC and enter the IP address of the Media Gateway portion of the V6000.
 - b Enter the user name and password (the defaults are Admin, Admin).



Both user name and password are case sensitive.

- c Click **Quick Setup**.
- d In the **Enable Registration** dropdown list, select **Enabled**.
- e Click **Reset**.
- f Click **OK**.

The Media Gateway restarts. After the restart has been completed, the newly configured value takes effect.

- 4 Set the **Gateway Name** to the host portion of the SIP URI of the FXS endpoints.

- a Open a browser on your PC and enter the IP address of the Media Gateway portion of the V6000.
- b In the page that appears, enter the user name and password. The defaults are Admin, Admin. If you changed the default values when you first configured the Media Gateway, enter the new values.



Both user name and password are case sensitive.

- c Click **Quick Setup** and change the **Gateway Name** to the host part of the SIP URI for any FXS endpoint. For example, if the SIP URI is sip:1000@1.1.1.1, enter 1.1.1.1 as the Gateway Name.



VCX systems use the dialing domain as the host part of the SIP URI. 3Com recommends that customers use 1.1.1.1 as the dialing domain for all VCX servers.

- d Click **Reset**.

- e Click **OK**.

The Media Gateway restarts. After the restart has been completed, the newly configured value takes effect.

5 Configure **Use Gateway Name for OPTIONS** to **Yes**.

- a Open a browser on your PC and enter the IP address of the Media Gateway portion of the V6000.
- b Enter the user name and password (the defaults are Admin, Admin).



Both user name and password are case sensitive.

- c Click **Protocol Management > Protocol Definition > Proxy & Registration**.

- d Scroll down and locate **Use Gateway Name for OPTIONS**.

- e From the dropdown list, select **Yes**.

- f Click **Submit**.

Configuring VCX Processor

To connect the VCX Processor to your network:

- 1 Connect an Ethernet cable (RJ-45 connector) to the Ethernet port on the back panel of the unit.
- 2 Connect the other end of the Ethernet cable to your network.
- 3 Connect the serial cable (supplied with the unit) to the serial port that is located in the lower left corner of the Connection Module on the back panel.

- 4 Connect the other end of the cable to a serial port on a PC.
- 5 On the PC, run a terminal emulation program with these parameters:
 - VT100 emulation mode
 - 115,200 Baud
 - 8 data bits
 - 1 stop bit
 - No parity
 - No flow control
- 6 At the prompt, enter this command:

vcx-setup

The VCX processor within the V6000 runs the IP Telephony and Messaging software configuration. For instructions on how to configure the VCX processor, see [“Configuring a Branch Office IP Telephony and Messaging Server”](#) in [Chapter 2](#).

Printer Configuration Overview

The VCX operating system includes the Common Unix Printing System (CUPS) for printing support in IP Messaging. This support enables IP Messaging to automatically send faxes to a printer. Fax auto-delivery is described in the *IP Messaging Operations and System Administration Guide*.

This appendix describes how to set up a default printer. For more information on printer configuration, refer to one of the following resources:

- CUPS documentation — On your VCX or IP Messaging system, access the `/usr/share/doc/cups-1.1.17` directory. This directory contains several documents in PDF format, including the *CUPS Software Administrator's Manual* (filename: `sam.pdf`). This manual provides extensive information on printing.
- CUPS web page — The web page, <http://www.cups.org>, also includes extensive information on CUPS.
- Man page — Enter the command `man lpadmin` for a quick reference to printer configuration.

Adding a Printer

The VCX operating system uses the `lpadmin` interface for printer setup. This interface is the standard command line tool for configuring CUPS. Note that you must be logged in as `root` to execute these commands. The default password for the root account is `pvadmin`.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

The following commands set up a remote PostScript printer.

```
/usr/sbin/lpadmin -p myPrinter -v lpd://10.1.1.1/lp -m
postscript
```

```
/usr/bin/enable myPrinter
```

```
/usr/sbin/accept myPrinter
```

The first command identifies name of the printer as `myPrinter` and the name of the printer queue as `lp`. The printer's IP address is `10.1.1.1`.

The second and third commands enable the printer and allow it to accept print jobs.

The following command sets this printer as the default. This step is not necessary unless you have more than one printer defined.

```
/usr/sbin/lpadmin -d myPrinter
```

Other useful commands include:

- **lpstat** — Displays status information about current print jobs and printers.
- **lp** — Submits files for printing or cancels print jobs.
- **lpq** — Shows information about print queue status.

Adding a RAID Disk

To configure any VCX server for RAID operation, use the instructions in this section to add a second disk drive and configure the RAID software.



CAUTION: While you are configuring a VCX server for RAID operation, the server is offline. 3Com recommends that you add RAID disks at times when the system can be scheduled to be unavailable.

Adding a Second Disk Drive

To add a second disk drive to a VCX server:

- 1 Log in as root and shut down the server using this command:
shutdown now
- 2 Remove power from the server.
- 3 Insert the new disk drive into the appropriate slot:
 - On an IBM x306 server, disk drive 0 is located in the left slot as you face the front of the server. Insert the new disk drive 1 into the right slot.
 - On an IBM x345 or x346 server, disk drive 0 is located in the upper slot as you face the front of the server. Insert the new disk drive into the lower slot.
 - On a 3Com V6000 server, disk drive 0 is located in the left slot as you face the back of the server. Insert the new disk drive into the right slot.
- 4 Reapply power to the unit.

- 5 On any of the IBM servers, press the start button. This is not necessary on the V6000 server.
- 6 When the server has finished the startup process, log in as root and run this command:

```
vcx-raid-setup
```

- 7 When the script asks you whether you want to continue, answer **Y**.



The script stops VCX services, configures the new disk as a RAID device, and copies the contents of the original disk to the new disk. It then reboots the server.

After the reboot, the process of mirroring the two disk drives continues in the background. The system is fully operational.

Verifying RAID Status

You can determine the status of the RAID disks by using the **vcx-raid-status** command. You might want to determine if the newly added disk is fully mirrored, or, during later operation, you might want to verify that both disks are operating properly. Use one of these command formats:

```
vcx-raid-status --verbose
```

```
vcx-raid-status --short
```

For instructions on how to replace a failed RAID disk, see [“Replacing a RAID Disk”](#) in [Appendix C](#).

VLAN Configuration

If you use Virtual LANs (VLANs) in your network, you can configure 3Com telephones and other devices to operate on a specific VLAN in these ways:

- Configure Option 184 on your DHCP server to pass VLAN information to devices. See [Appendix A, “Configuring Option 184 on a Windows 2000 DHCP Server”](#) for instructions.
- Manually configure the VLAN ID number on the telephone or device.

Configuring Devices for VLAN Operation

This section contains instructions on how to configure certain VCX devices for VLAN operation.

Telephones

To configure any 3Com telephone for VLAN operation:

- 1 Press the PROGRAM button.
- 2 Press **6** (VCX Cnfig Menu).
- 3 Press **2** (Set VLAN Cnfg).
- 4 Press **1** (Enable VLANs).
- 5 Enter the ID number of the VLAN on which you want the telephone to operate.
- 6 Press **#**.

Complement Attendant Software (CAS)

You cannot configure the CAS application for VLAN operation.

3105 Attendant Console



To configure a 3Com 3105 Attendant Console, you must have an adapter that connects to a male 9-pin (DB9) serial port on your PC and has an RJ-45 port that accepts an Ethernet cable. This table shows the pinouts:

	Function
1	No Connection
2	DCD/DTR
3	DCD/DTR
4	GND
5	RXD
6	TXD
7	CTS
8	RTS

To set the VLAN ID number for a 3105 Attendant Console:

- 1 Plug a standard Ethernet cable into the data port, located on the underside of the Attendant Console.
- 2 Plug the other end of the Ethernet cable into an active network jack.
- 3 Using an adapter (female 9-pin DB9 to female RJ-45) and a standard Ethernet cable, connect a serial port on your PC to the serial port on the underside of the 3105 Attendant Console.

- 4 Connect a 3Com power adapter to an AC power outlet.
- 5 Connect the other end of the power adapter cable to the power connector on the underside of the 3105 Attendant Console.
- 6 Use a terminal emulation program such as Hyperterm to connect to the serial port on your PC. The configuration is:
 - 9600 baud
 - 8 data bits
 - 1 stop bit
 - No parity
 - No flow control
- 7 In the Hyperterm window, enter this command, substituting the one- or two-digit VLAN ID number for XY:

VcxSetVlanConfig XY

V7111 and V7122 Gateways

You cannot configure V7111 or V7122 gateways to operate on a VLAN.

10

INSTALLING THE ENTERPRISE MANAGEMENT SUITE

Installing Enterprise Management Suite

Enterprise Management Suite (EMS) is used to perform advanced configuration tasks on the Call Processing Server. It also provides a way to perform some configuration of the authentication and directory server. Use the *VCX V7230 Enterprise Management Suite User Guide* to install EMS and discover the components of the VCX system.

11

MAINTENANCE

The chapter covers these topics:

Reconfiguration

- [About VCX Passwords](#)
- [Reconfiguring a VCX Server](#)

Adding Trusted Endpoints

- [Adding Trusted Endpoints](#)

Process Verification

- [Verifying Process Operation](#)

Common Agent

- [Starting the Common Agent](#)
- [Stopping the Common Agent](#)
- [Restarting the Common Agent](#)

Call Processor

- [Obtaining Call Processor Status](#)
- [Starting the Call Processor](#)
- [Stopping the Call Processor](#)
- [Restarting the Call Processor](#)

VCX Authentication and Directory Service

- [Obtaining VCX Authentication and Directory Service Status](#)
- [Starting the VCX Authentication and Directory Service](#)
- [Stopping the VCX Authentication and Directory Service](#)
- [Restarting the VCX Authentication and Directory Service](#)

SIP Phone Downloader

- [Starting the SIP Phone Downloader](#)
- [Stopping the SIP Phone Downloader](#)
- [Restarting the SIP Phone Downloader](#)

Accounting Service

- [Obtaining Accounting Service Status](#)
- [Starting the Accounting Service](#)
- [Stopping the Accounting Service](#)
- [Restarting the Accounting Service](#)

IP Messaging System

- [Obtaining IPMSG Service Status](#)
- [Starting the IPMSG Service](#)
- [Stopping the IPMSG Service](#)
- [Restarting the IPMSG Service](#)

About VCX Passwords

The commands you execute to perform the maintenance tasks described in this guide require logging in to a server using the appropriate VCX system account. The username and default password for each account is shown in [Table 10](#).

Table 10 VCX System Accounts

Username	Default Password
root	padmin
oracle	oracle
tomcat	tomcat
cworks	cworks
vcx	vcx
app	nice



During the VCX installation procedure, the installer has the option to change the default password for each account. 3Com strongly recommends, for security reasons, that installers change the default passwords. 3Com also recommends that customers change passwords regularly. Consult with your VCX installer for the current passwords.

These passwords can be changed after the initial installation by running the `vcx-reconfigure` script. See [Sample Reconfiguration](#) later in this chapter for an example.



CAUTION: Do not use operating system commands or utilities to change these passwords. The `vcx-reconfigure` script changes the password where necessary in VCX scripts and configurations. Operating system commands and utilities do not.

Reconfiguring a VCX Server

Reconfiguring a VCX server enables you to modify its networking parameters and the configuration of the services that run on the server.

You may decide to reconfigure a VCX server if, for example, you are moving it to a new subnetwork or if you are expanding your VCX system to include additional servers and need all servers to work together in the new configuration.

If you reconfigure any server in a VCX system, you must usually reconfigure all of the other servers in the system because the servers all share information.

A significant step in the reconfiguration is the dropping of database replication. Reconfigure primary servers and then secondary servers.



CAUTION: Do not reboot a server immediately after reconfiguring it. Instead, after you have reconfigured all servers, reboot them all at once.

To reconfigure a VCX server, enter this command on the console:

vcx-reconfigure



CAUTION: Do not run this command using a remote (ssh) login. The script restarts networking at one point and you will lose your connection.

You cannot use the `vcx-reconfigure` command to change these items:

- **Configuration Type** — You cannot modify a Call Processing Server to become an IP Messaging Server
- **Role** — You cannot change a primary server to become a secondary server.
- **Site ID** — Once configured, the site ID must remain the same.
- **Global versus Local Messaging** — You cannot change this setting after it has been initially configured.
- **System Speed Dial Master** — After a server has been configured as the master server for configuring system speed dials, it must remain the master. Similarly, no other server, once it has been configured to not be a system speed dial master server can become the master server.

**Sample
Reconfiguration**

The sample reconfiguration script in this section is based on a two-server configuration in which the changes that are being made are described in [Table 11](#), next. Configuration parameters that are not listed in [Table 11](#) remain unchanged.

Table 11 Changes in Server Configuration

Parameter	Original Value	New Value
IP Address (eth0)	10.230.64.30	10.230.64.40
IP Address (eth1)	10.230.64.31	10.230.64.41
Partner IP Address (eth0)	10.230.66.30	10.230.67.40
Partner IP Address (eth1)	10.230.66.31	10.230.67.41
Server Name	test-one	test-three
Site Description	Site One	Site Three
Partner Server Name	test-two	test-four
Partner Site ID	testtwo	testfour

Sample VCX Reconfiguration Script

```
-----
----- Welcome to the VCX Reconfiguration Utility -----
-----
This utility allows a previously configured VCX system to be reconfigured -
for example, to change its IP address or the IP addresses of other VCX
servers with which it communicates.
```

To accomplish this, it is necessary to carry out several steps including stopping VCX services and discontinuing any replication which may be occurring with other servers. Therefore, this utility should only be run on a system which is not in active use.

Sample VCX Reconfiguration Script (continued)

Following reconfiguration, you must follow the VCX documentation to bring all servers back online and re-establish any replication which was in use. The correct procedures must be followed for this process to succeed.

Do you wish to reconfigure the system at this time? [no] : **yes**

Starting reconfiguration.

```
----- Preparing For Reconfiguration -----
```

VCX services are currently running - stopping them now.

Stopping VCX Services:

Stopping vcx/devdnldsvr: [OK]

Stopping vcx/callp: [OK]

Stopping vcx/tomcat: [OK]

Stopping vcx/ums: [OK]

Stopping vcx/bssxml: [OK]

Stopping vcx/acctxml: [OK]

Stopping vcx/vcxglobaldir: [OK]

Stopping vcx/vcxdata: [OK]

Stopped VCX Services: 8 stopped.

Replication is in use.

Dropping replication - please wait.

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3Com VCX Multi-Master Replication DROP Start Configuring

Sample VCX Reconfiguration Script (continued)

Enter the VCX Site Identification i.e. Site Id: ?? []:**testone**

Enter the site ID for this server.

Enter the Number of MASTER SITES other than the MASTER DEFINITION SITE [1]:

Enter the MASTER DEFINITION SITE IP Address [10.230.64.30]:**10.230.64.40**

The term "Master Definition Site" is an Oracle term. In this sample script, the term equates to the primary server (the server that we are now configuring). Authentication and Directory tasks are associated with the eth0 network interface. The script prompts you with the existing IP address of eth0 on this server. Enter the new IP address for eth0.

Enter the MASTER SITE 1 IP Address [0.0.0.0]:**10.230.67.40**

The term "Master Site" is an Oracle term. In this sample script, the term equates to the secondary server. Authentication and Directory tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the secondary VCX server.

For 3Com VCX Multi-Master Replication DROP ...

NAME'S OF SCHEMA TO DROP REPLICATION : vcxdatatestone

MASTER DEFINITION SITE IP Address : 10.230.64.40

MASTER SITE 1 IP Address : 10.230.67.40

Do you want to continue with the above settings ? [n/y]:**y**

Enter y to accept the information that you have entered, or enter n to change one or more of the items. If you enter n, the script prompts you with the current value for each item and allows you to change it.

3Com VCX Multi-Master Replication DROP ... continue with User Inputs

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VCXDATATESTONEX Database Multi-Master Replication DROP Process starting ...

For Log Details Refer to ../log/replication_VCXDATATESTONEX_DROP200503300731.log

Mar 30, 2005 7:38:07 AM com.coms.replication.run.Start dropReplication

INFO:

Sample VCX Reconfiguration Script (continued)

```
-----
3Com VCXDATATESTONEX Database ...
Multi-Master Replication DROP:
```

```
*****
***** COMPLETE *****
*****
-----
```

Dropping replication succeeded.

When you see this message, the database replication that was previously active has been deactivated (dropped).

The script now presents the network parameters and allows you to change them.

```
-----
----- VCX Network Configuration Utility -----
-----
```

This wizard sets up networking and related services.

Configure networking now? [yes] :

```
----- Configuring Dynamic Host Configuration Protocol (DHCP) -----
```

VCX servers can use DHCP for automated configuration, but this requires that the DHCP server is configured to provide the proper options. Unless you know that your environment is set up in this way, you should say 'no' here and configure static network parameters.

Use DHCP on eth0 to configure network parameters? [no] :

```
----- Configuring Hostname -----
```

Enter system hostname : **test-three**

In this sample script, the host name is being changed from test-one to test-three.

Sample VCX Reconfiguration Script (continued)

----- Configuring IP Interface 'eth0' -----

IP Address : **10.230.64.40**
 Network Subnet Mask : 255.255.255.0
 Default Gateway Address : 10.230.64.254

In this sample script, the IP address of eth0 is being changed from 10.230.64.30 to 10.230.64. 40. Other parameters remain unchanged.

----- Configuring IP Interface 'eth1' -----

Interface State : enabled
 IP Address : **10.230.64.41**
 Network Subnet Mask : 255.255.255.0
 Default Gateway Address : 10.230.64.254

In this sample script, the IP address of eth0 is being changed from 10.230.64.31 to 10.230.64. 41. Other parameters remain unchanged.

----- Configuring DNS Servers -----

Enter DNS servers one at a time.
 When done, enter 0.0.0.0 to stop.

Primary DNS Server : 10.25.10.31
 Secondary DNS Server : 10.26.10.31
 Tertiary DNS Server : 10.27.10.31

In this sample script, DNS server IP addresses remain unchanged.

----- Configuring DNS Search Path -----

Press Enter to leave the current path unchanged, or specify
 a new search path, with spaces separating each entry.

DNS Search Path : yourcompany.com

In this sample script, the DNS search path remains unchanged.

----- Configuring Network Time Protocol -----

Enter NTP servers one at a time.
 When done, enter 0.0.0.0 to stop.

Primary NTP Server : 10.35.10.51
 Secondary NTP Server : 10.36.10.51

In this sample script, NTP server IP addresses remain unchanged.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

Sample VCX Reconfiguration Script (continued)

----- Configuring Time Zone -----

Please select a geographic location from the following list:

1. Africa
2. Americas
3. Antarctica
4. Arctic Ocean
5. Asia
6. Atlantic Ocean
7. Australia
8. Europe
9. Indian Ocean
10. Pacific Ocean

Enter continent [2] :

Please select a country from the following list:

- | | | |
|-------------------------|----------------------|--------------------------|
| 1. Antigua & Barbuda | 18. Ecuador | 35. Panama |
| 2. Anguilla | 19. Grenada | 36. Peru |
| 3. Netherlands Antilles | 20. French Guiana | 37. St Pierre & Miquelon |
| 4. Argentina | 21. Greenland | 38. Puerto Rico |
| 5. Aruba | 22. Guadeloupe | 39. Paraguay |
| 6. Barbados | 23. Guatemala | 40. Suriname |
| 7. Bolivia | 24. Guyana | 41. El Salvador |
| 8. Brazil | 25. Honduras | 42. Turks & Caicos Is |
| 9. Bahamas | 26. Haiti | 43. Trinidad & Tobago |
| 10. Belize | 27. Jamaica | 44. United States |
| 11. Canada | 28. St Kitts & Nevis | 45. Uruguay |
| 12. Chile | 29. Cayman Islands | 46. St Vincent |
| 13. Colombia | 30. St Lucia | 47. Venezuela |
| 14. Costa Rica | 31. Martinique | 48. Virgin Islands (UK) |
| 15. Cuba | 32. Montserrat | 49. Virgin Islands (US) |
| 16. Dominica | 33. Mexico | |
| 17. Dominican Republic | 34. Nicaragua | |

Enter country [44] :

In this sample script, the country code remains unchanged.

Please select a time zone from the following list:

1. Alaska Time
2. Alaska Time - Alaska panhandle
3. Alaska Time - Alaska panhandle neck
4. Alaska Time - west Alaska
5. Aleutian Islands

Sample VCX Reconfiguration Script (continued)

```

6. Central Time
7. Central Time - Michigan - Wisconsin border
8. Central Time - North Dakota - Oliver County
9. Eastern Standard Time - Indiana - Crawford County
10. Eastern Standard Time - Indiana - Starke County
11. Eastern Standard Time - Indiana - Switzerland County
12. Eastern Standard Time - Indiana - most locations
13. Eastern Time
14. Eastern Time - Kentucky - Louisville area
15. Eastern Time - Kentucky - Wayne County
16. Eastern Time - Michigan - most locations
17. Hawaii
18. Mountain Standard Time - Arizona
19. Mountain Time
20. Mountain Time - Navajo
21. Mountain Time - south Idaho & east Oregon
22. Pacific Time
Enter zone [13] :

```

In this sample script, the time zone remains unchanged.

```
Selected Time Zone:      America/New_York
```

The script displays a summary of the configuration information that you have accepted or changed.

```

----- CONFIGURATION SUMMARY -----
DHCP state:      disabled

Hostname:        test-three

IP Interfaces:   Device      IP Address      Network Mask    Default Gateway
                  eth0       10.230.64.40    255.255.255.0   10.230.64.254
                  eth1       10.230.64.41    255.255.255.0   10.230.64.254

DNS Servers:     10.25.10.31
                  10.26.10.31
                  10.27.10.31
Search Domains:  ne.3com.com

NTP Servers:     10.35.10.51
                  10.36.10.51

Time Zone:       America/New_York
-----

```

Sample VCX Reconfiguration Script (continued)

Is all of the above information correct? [yes] :

Press the Enter or Return key to accept the information. To change any of the parameters, enter no.

The script displays several status messages and then presents the services parameters and allows you to change them.

 ----- Welcome to the VCX Service Reconfiguration Wizard -----

----- Configuring VCX Services -----

Services running on this server need to communicate with other servers and devices in order to operate. In the next series of questions, you will be asked for information about these external services and devices, and for other global parameters.

The site name provides a user-friendly description of a location in a multi-site VCX installation. This may be used to identify a site in certain management interfaces. The site name may be up to 255 characters long and can contain letters, numbers, spaces, underscores, dashes, and colons.

Enter a description for this site : **Site Three**

Enter the new site description for this server.

The Customer Name identifies the company using this VCX system.

Enter the customer name : 3Com Customer

Some VCX applications can use European date ordering. Answer 'Y' here to enable this.

Use European date order? (Y/N) [N] :

The SIP default dialing domain is used to construct the SIP URI for outbound SIP requests.

Sample VCX Reconfiguration Script (continued)

Enter the SIP default dialing domain : 1.1.1.1

In this sample script, the dialing domain remains unchanged.

The secondary call processor acts as a backup if the primary is down or unreachable.

Enter the IP address of the secondary call processor : **10.230.67.41**

Call Processor tasks are associated with the eth1 network interface. Enter the IP address of eth1 on the secondary VCX server, as it will be defined after the reconfiguration.

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service : **10.230.67.40**

Authentication and Directory tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary VCX Server, as it will be defined after the reconfiguration.

The secondary IP Messaging server is a backup host for voice mail and other messaging services.

Enter the IP address of the secondary IP Messaging server : **10.230.67.40**

IP Messaging tasks are associated with the eth0 network interface. Enter the IP address of eth0 on the Secondary VCX Server, as it will be defined after the reconfiguration.

The primary media gateway acts as the interface between the VCX IP telephony system and the external telephone network.

Enter the IP address of the primary media gateway : 10.230.64.15

In this sample script the IP address of the primary media gateway remains unchanged. Press the Enter or Return key to accept the current IP address.

Sample VCX Reconfiguration Script (continued)

The secondary media gateway is an additional interface between the VCX IP telephony system and the external telephone network.

Enter the IP address of the secondary media gateway : 10.230.67.15

In this sample script the IP address of the secondary media gateway remains unchanged. Press the Enter or Return key to accept the current IP address.

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Enable the Call Records Service (Y/N)? [N] :

Press the Enter or Return key to accept the default answer (Y). The Call Records Service is enabled on only the Primary VCX Server.

The script displays a summary of the global parameters that you have accepted or changed.

----- Summary of Global Parameters -----

```

                Site Name : Testthree
            Customer Name : 3Com Customer
        European Date Order : N
    SIP Default Dialing Domain : 1.1.1.1
        Secondary Call Processor : 10.230.67.41
    Secondary Auth & Dir Service : 10.230.67.40
Secondary IP Messaging Service : 10.230.67.40
        Primary Media Gateway : 10.230.64.15
        Secondary Media Gateway : 10.230.67.15
    Enable Call Records Service : Y
  
```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N). To change any of the information, enter Y.

----- Configuring additional parameters for System -----

This section allows you to change the password for each VCX system account. Press Enter to accept the current password.

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

App account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

----- Configuring additional parameters for IP Messaging System -----

The hostname of the other IP Messaging system is needed in order to set up Intelligent Mirroring redundancy with this system.

Sample VCX Reconfiguration Script (continued)

Hostname of peer IP Messaging system : **test-four**

Enter the host name of the Secondary VCX Server, as it will be defined after the reconfiguration.

IP Messaging includes an optional ability to archive messages to an external server.

Is Message Archival enabled? [N] :

Press the Enter or Return key to accept the default answer. In this sample script, the default answer (N) indicates that message archival was not originally enabled on this server.

IP Messaging includes an optional ability to back up messages to an external server.

Enable data backup server for IPMS? [N] :

Press the Enter or Return key to accept the default answer. In this sample script, the default answer (N) indicates that data backup was not originally enabled on this server.

IP Messaging includes an optional ability to import subscriber profiles from VCX.

Enable VCX subscriber bulk import? [Y] :

Press the Enter or Return key to accept the default answer. In this sample script, the default answer (Y) indicates that bulk import was originally enabled on this server.

For VCX subscriber bulk import, the user name to use when accessing the VCX Authentication & Directory Server is needed.

User name for access to Auth & Dir Server : cworks

Press the Enter or Return key to accept the default value for the username, or enter a new user name.

In addition, the password for the previously provided user name is required. Specify the password to use when accessing the VCX Authentication & Directory Server.

Password for access to Auth & Dir Server : cworks

Press the Enter or Return key to accept the default password, or enter a new password.

Sample VCX Reconfiguration Script (continued)

IP Messaging includes support for Text To Speech (TTS) via one or more external servers. To use this feature you must answer 'Y' here.

Is Text To Speech (TTS) enabled? [N] :

Press the Enter or Return key to accept the default answer. In this sample script, the default answer (N) indicates that no text-to-speech service was originally enabled on this server.

Do you wish to change any of the IP Messaging System parameters? [N] :

Press the Enter or Return key to accept the data that you have accepted or changed. To review the data and make additional changes, enter Y.

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the username for access to the regional office system is required. At a regional office or on a standalone system, specify the username for access to *this* system.

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N) and make no further changes. If you want to make additional changes, enter Y.

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination : 10.230.64.70

Press the Enter or Return key to accept the IP address of the existing Network Management Station or enter a new IP address. In this sample script, the address remains unchanged.

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public

Press the Enter or Return key to accept the existing trap community string or enter a new string.

Sample VCX Reconfiguration Script (continued)

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private

Press the Enter or Return key to accept the existing write community string or enter a new string.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public

Press the Enter or Return key to accept the existing read community string or enter a new string.

Common Agent supports a management station authentication feature.

Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N) and continue with no management station authentication. Enter Y if you want to specify up to four management station IP addresses.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N) and use the data that you have accepted or modified. Enter Y to make additional changes.

VCX reconfiguration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Sample VCX Reconfiguration Script (continued)

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.

----- Applying Changes -----

The script displays several status messages. The last message reminds you to reboot all servers after they have all been reconfigured and to reboot them all at the same time.

Reconfiguration of components is complete. After all systems are reconfigured, you will need to reboot and then restore replication.

----- Reconfiguration Completed -----

End of Sample VCX Reconfiguration Script

Adding Trusted Endpoints

To add any server or PSTN gateway as a trusted endpoint, log in as root on the Call Processing Server in the regional office and invoke the Remote Command Line Interpreter (remoteCli).



CAUTION: If you add trusted endpoints using this method and later you run the `vcx-reconfigure` command, the list of trusted endpoints provided in `vcx-reconfigure` will override those defined using `remoteCli`.

Enter these commands:

```
cd /opt/3com/VCX/callprocessor/remoteCli/bin
./remoteCli -call
```

To see the current list of trusted endpoints, enter this command:

```
show cctrusted
```

Sample output from the `show cctrusted` command:

```
CcTrusted
  -Index -RowStatus -TrustedAddress -Netmask
1       1          10.230.64.5      255.255.255.255
2       1          10.230.63.7      255.255.255.255
3       1          10.230.63.15     255.255.255.255
4       1          255.255.255.255
```

Add a new row, by entering a `config cct` command that includes the IP address of the trusted endpoint.

Sample Command:

```
config cct row=4 index=5 trustedaddr=10.230.64.7 netmask=255.255.255.255
```

In the previous line:

- **row** — This element specifies the action to be taken and the resulting state of the row. Acceptable values are:
 - **row=1:** Sets the state of the row to ACTIVE. Use this value only when a row already exists. There is no need to respecify the `trustedaddr` and `netmask` values.
 - **row=2:** Sets the state of the row to NOT_IN_SERVICE. Use this value only when a row already exists. There is no need to respecify the `trustedaddr` and `netmask` values.

- **row=3:** Sets the state of the row to NOT_READY. Use this value only when a row already exists. There is no need to respecify the `trustedaddr` and `netmask` values.
- **row=4:** Creates the row and sets the state to ACTIVE
- **row=5:** Creates the row and sets the state to NOT_READY
- **row=6:** Deletes the specified row
- **index** — This element of the command specifies the row number to which the action specified by `row` will be applied. When adding a new trusted endpoint, always use an index number that is one greater than the last index number shown in the output of the `show cctrusted` command.
- **trustedaddr** — The IP address of the trusted endpoint
- **netmask** — Always use 255.255.255.255 as the netmask when adding a single endpoint. Any other value specifies a range of IP addresses using the Variable Length Subnet Mask (VLSM) method.

To verify that the trusted endpoint has been added to the list, enter this command:

show cctrusted

Sample output from the `show cctrusted` command after a new row (with `index=5`) has been added:

```
CcTrusted
-Index -RowStatus -TrustedAddress -Netmask
1      1      10.230.64.5    255.255.255.255
2      1      10.230.63.7    255.255.255.255
3      1      10.230.63.15   255.255.255.255
4      1      255.255.255.255
5      1      10.230.64.7    255.255.255.255
```

Verifying Process Operation

To determine if the Accounting Service, Authentication and Directory Service, Common Agent, IP Messaging System, or the associated monitor process is running, log in as *root* and enter:

```
ps -A | grep cw
```

In the list that appears, verify that these process names are included:

- **cw_acctxml** — Accounting Service
- **cw_vcxdata** — Authentication and Directory Service
- **cw_cagent** — Common Agent
- **cw_ipums** — IP Messaging System
- **cw_procmon** — Monitor process associated with the Call Processor

Use the procedures outlined in the next sections to start or stop one of these processes.

Starting the Common Agent

EMS connects to the Accounting Service, Authentication and Directory Service, the Call Records Service, or the Call Processing Server using the Common Agent, which is installed by default on all VCX servers. The common agent is normally running but can be stopped and started using the console terminal or a remote login connection.



Although the Call Processing Server supports provisioning using a command line interface (see the VCX Administration Guide), 3Com recommends that customers use Enterprise Management Suite (EMS) to provision the Call Processing Server.

To start the common agent:

- 1 Log in as *root* to the server on which the Call Processor service resides. The default password is *pvadmin*.



CAUTION: *3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”*

- 2 Enter these commands:

```
cd /opt/3com/VCX/commagent/vcx-scripts/init.d
./commagent start
```


Stopping the Common Agent

Stop the common agent using operating system commands or using EMS.



The Accounting Service (acctxml), Authentication and Directory Service (vcxdata), Call Records Service (bssxml), and the Call Processing Server (callp) cannot be viewed from EMS when the common agent is stopped.

Using Operating System Commands

To stop the common agent using operating system commands:

- 1 Log in as *root* to the server on which the common agent software resides. The default password is *pvadmin*.



- 2 **CAUTION:** 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the "VCX Security Guide."

- 3 Enter these commands:

```
cd /opt/3com/VCX/commagent/vcx-scripts/init.d
./commagent stop
```

Using EMS Use EMS to stop the common agent immediately or gracefully.

Stopping the Common Agent Immediately

To stop the common agent immediately:

- 1 From the Explorer tab, right-click 3Com SNMP Agent.
- 2 From the pop-up menu, select *Maintenance > Hard Shutdown*.

Stopping the Common Agent Gracefully

To stop the common agent gracefully:

- 1 From the Explorer tab, right-click 3Com SNMP Agent.
- 2 From the pop-up menu, select *Maintenance > Graceful Shutdown*.

A dialog box displays the progress of the command. When the common agent has been restarted, the Working icon changes to a Finished icon.

- 3 Click **Close**.

Restarting the Common Agent

Use EMS to restart the common agent immediately or gracefully, if it is currently running. If the common agent is stopped, EMS will not be able to communicate with the VCX system to issue the restart command. The common agent can also be restarted from the VCX console. To restart the common agent:

Using Operating System Commands

If the common agent has been stopped, you can start the common agent using operating system commands:

- 1 Log in as *root* to the server on which the common agent software resides. The default password is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/commagent/vcx-scripts/init.d
./commagent start
```

The commagent script does not accept *restart* or *status* as a valid arguments.

Using EMS

To restart the common agent using EMS:

Restarting the Common Agent Immediately

To restart the common agent immediately:

- 1 From the Explorer tab, right-click 3Com SNMP Agent.
- 2 From the pop-up menu, select *Maintenance > Hard Restart*.

Restarting the Common Agent Gracefully

To restart the common agent gracefully:

- 1 From the Explorer tab, right-click 3Com SNMP Agent.
- 2 From the pop-up menu, select *Maintenance > Graceful Restart*.

A dialog box displays the progress of the command. When the common agent has been restarted, the Working icon changes to a Finished icon.

- 3 Click **Close**.

Obtaining Call Processor Status

To obtain the status of the Call Processor service:

- 1 Log in as `vcx` to the server on which the Call Processor service resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S80callp status
```

Starting the Call Processor

The script that starts the Call Processor service runs the Call Processor service in the background with the Call Processor process monitor. The process monitor monitors the Call Processor server application and restarts it if the application stops.

Once the Call Processor service is started, it is automatically restarted by the process monitor if there is a failure, and it is automatically restarted if the VCX server (PC) is rebooted. The Call Processor service does not need to be started again.

Exceptions:

- After you stop the Call Processor service using the script with the `stop` option
- If the process monitor exceeds the set number of automatic restarts

To start the Call Processor service:

- 1 Log in as `vcx` to the server on which the Call Processor service resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S80callp start
```

Stopping the Call Processor

Stop the Call Processor service using operating system commands or by using EMS.

Using Operating System Commands

To stop the Call Processor service using operating system commands:

- 1 Log in as vcx to the server on which the Call Processor service resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d  
./S80callp stop
```

Using EMS

To stop the Call Processor service from EMS:

- 1 From the Explorer tab, right-click the 3Com Call Processor service.
- 2 From the pop-up menu, select *Maintenance > Hard Shutdown* to shut down the Call Processor service.

A dialog box appears and displays the progress of the command. When the command has been completed, the Working icon changes to a Finished icon.

Restarting the Call Processor

Restart the Call Processor service using operating system commands or using EMS. Restarting the Call Processor service stops and restarts the Call Processor service but leaves the Call Processor monitor running.

Using Operating System Commands

To restart the Call Processor service using operating system commands:

- 1 Log in as vcx to the server on which the Call Processor service resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d  
./S80callp restart
```

Using EMS

To restart the Call Processor service from EMS:

- 1 From the Explorer tab, right-click the 3Com Call Processor service.
- 2 From the pop-up menu, select *Maintenance > Hard Restart* to shutdown and restart the Call Processor service.

Obtaining VCX Authentication and Directory Service Status

The VCX Authentication and Directory Service authenticates users and provides telephone directory services. Internally, it is called *vcxdata*.

To determine the status of the VCX Authentication and Directory Service:

- 1 Log in as *root* or *cworks* to the server on which the Authentication and Directory Service resides. The default password for the root account is *pvadmin*. The default password for the *cworks* account is *cworks*.



CAUTION: 3Com strongly recommends that customers change these passwords on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata status
```

Starting the VCX Authentication and Directory Service

The VCX Authentication and Directory Service authenticates users and provides telephone directory services. Internally, it is called *vcxdata*.

To start the VCX Authentication and Directory Service:

- 1 Log in as *root* or *cworks* to the server on which the Authentication and Directory Service resides. The default password for the root account is *pvadmin*. The default password for the *cworks* account is *cworks*.



CAUTION: 3Com strongly recommends that customers change these passwords on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata start
```

Stopping the VCX Authentication and Directory Service

The VCX Authentication and Directory Service authenticates users and provides telephone directory services. Internally, it is called *vcxdata*.

To stop the Authentication and Directory Service:

- 1 Log in as *root* or *cworks* to the server on which the Authentication and Directory Service resides. The default password for the root account is *pvadmin*. The default password for the *cworks* account is *cworks*.



CAUTION: 3Com strongly recommends that customers change these passwords on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata stop
```

Restarting the VCX Authentication and Directory Service

The VCX Authentication and Directory Service authenticates users and provides telephone directory services. Internally, it is called *vcxdata*.

To restart the Authentication and Directory Service:

- 1 Log in as *root* or *cworks* to the server on which the Authentication and Directory Service resides. The default password for the root account is *pvadmin*. The default password for the *cworks* account is *cworks*.



CAUTION: 3Com strongly recommends that customers change these passwords on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata restart
```

Starting the SIP Phone Downloader

To start the SIP Phone Downloader:

- 1 Log in as *root* or *vcx* to the server on which the SIP phone downloader software resides. The default password for the root account is *pvadmin*. The default password for the *vcx* account is *vcx*.



CAUTION: 3Com strongly recommends that customers change these passwords on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/devdnldsvr/vcx-scripts/init.d
./S90devdnldsvr start
```

Stopping the SIP Phone Downloader

To stop the SIP phone downloader application:

- 1 Log in as *root* or *vcx* to the server on which the SIP phone downloader software resides. The default password for the root account is *pvadmin*. The default password for the *vcx* account is *vcx*.



CAUTION: 3Com strongly recommends that customers change these passwords on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/devdnldsvr/vcx-scripts/init.d
./S90devdnldsvr stop
```

Restarting the SIP Phone Downloader

To restart the SIP phone downloader application:

- 1 Log in as *root* or *vcx* to the server on which the SIP phone downloader software resides. The default password for the root account is *pvadmin*. The default password for the *vcx* account is *vcx*.



CAUTION: 3Com strongly recommends that customers change these passwords on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/devdnldsvr/vcx-scripts/init.d
./S90devdnldsvr restart
```

Obtaining Accounting Service Status

To obtain the status of the Accounting Service:

- 1 Log in as *cworks* on the server on which the Accounting Service software resides. The default password for the *cworks* account is *cworks*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S40acctxml status
```

Starting the Accounting Service

To start the Accounting Service:

- 1 Log in as *cworks* on the server on which the Accounting Service software resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d  
./S40acctxml start
```

Stopping the Accounting Service

To stop the Accounting Service:

- 1 Log in as *cworks* on the server on which the Accounting Service software resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d  
./S40acctxml stop
```

Restarting the Accounting Service

To restart the Accounting Service:

- 1 Log in as *cworks* on the server on which the Accounting Service software resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d  
./S40acctxml restart
```

Obtaining IPMSG Service Status

The IPMSG Service provides IP Messaging services to users. Internally, it is called *vcxums*.

To obtain the status of the IPMSG Service:

- 1 Log in as *app* on the server on which the IPMSG Service software resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d  
./S60ums status
```

Starting the IPMSG Service

The IPMSG Service provides IP Messaging services to users. Internally, it is called *vcxums*.

To start the IPMSG Service:

- 1 Log in as *app* on the server on which the IPMSG Service software resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S60ums start
```

Stopping the IPMSG Service

The IPMSG Service provides IP Messaging services to users. Internally, it is called *vcxums*.

To stop the IPMSG Service:

- 1 Log in as *app* on the server on which the IPMSG Service software resides.
- 2 Enter these commands:

```
cd opt/3com/VCX/scripts/rc3.d
./S60ums stop
```

Restarting the IPMSG Service

The IPMSG Service provides IP Messaging services to users. Internally, it is called *vcxums*.

To restart the IPMSG Service:

- 1 Log in as *app* on the server on which the IPMSG Service software resides.
- 2 Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S60ums restart
```


A

CONFIGURING OPTION 184 ON A WINDOWS 2000 DHCP SERVER

Overview

RFC 2132 (DHCP Options and BOOTP Vendor Extensions) allows for vendor-specific extensions to the DHCP protocol. It defines that option codes in the range 128 through 254 are set aside for vendor-specific extensions.

3Com telephones can receive their IP configuration from a DHCP server. However, 3Com telephones need configuration information that is not part of a standard DHCP response. You can use DHCP option 184 to specify this extended information:

- **NCP IP Address** — Each telephone must receive a download of operating settings from the VCX Downloader task, which typically resides on the VCX Call Processing Server.
- **Alternate Server IP Address** — Specifies a second location from which a telephone can receive its download. Typically, this is the IP address of the Secondary VCX Call Processing Server in a dual-server configuration.
- **Voice VLAN Configuration** — If you configure any of your 3Com telephones or your VCX system on Virtual LANs, you can configure your DHCP server to specify VLAN ID numbers for each scope. You can also enable and disable VLAN operation for each DHCP scope.
- **Fail-Over Call Route Point** — You can define a single fail-over route point (IP address) and an associated dial string for SIP devices such as telephones to use.

If a failure occurs on the Primary VCX Call Processing Server, the telephone switches to the Secondary VCX Call Processing Server. If both are unavailable, the telephone switches to peer-to-peer SIP operation and attempts to connect to the IP address of the fail-over route point. The dial string controls the types of calls that can be made while the telephone is in peer-to-peer mode.

To help you configure option 184, this appendix includes an example of how to configure option 184 on a Windows 2000 server that has been configured to run DHCP server software. It covers these topics:

- [Creating Option 184](#)
- [Editing Option 184 Values](#)
- [Activating Option 184](#)



The information in this appendix pertains only to a Windows 2000 server. The configuration instructions differ for other DHCP servers. See the documentation for your DHCP server for instructions.



This appendix describes only the configuration of option 184, not how to install or perform basic configuration of the Windows 2000 server.

Creating Option 184

If you are configuring more than one suboption for Option 184, the first subfield must be the NCP IP Address for backward compatibility.



If you configure multiple suboptions, 3Com recommends that you configure them in order of suboption number. You can omit one or more suboptions from the configuration. For example, if you decide not to configure suboption 2, 3Com recommends that you configure suboptions 1, 3, and 4, in that order.

- 1 Start the DHCP Microsoft Management Console:
Start > Programs > Administrative Tools > DHCP
The *DHCP* dialog box appears. In the left pane, look for the name of your Windows 2000 DHCP server.
- 2 Right click the name of your DHCP server. From the menu that appears, select *Set Predefined Options* to open the *Predefined Options and Values* dialog box.
- 3 Click *Add* to open the *Option Type* dialog box.
- 4 In the *Name* field, type a name of your choice.
- 5 From the *Data Type* drop-down list, select *Byte*.
- 6 Enable the *Array* check box.
- 7 In the *Code* text box, type *184*.
- 8 In the *Description* text box, enter a description of your choice. Example: *VCX NCP IP Address*.

9 Click *OK*.

In the *Predefined Options and Values* dialog box, the DHCP Microsoft Management Console creates a new option name by combining the option number with the name that you chose and adds this name to the *Option name* drop-down list.

Example: If you used VCX as the option name, the system adds *184 VCX* to the drop-down list.

Editing Option 184 Values

To edit Option 184 values:

- 1 Select the new option name from the *Option name* drop-down list, and click *Edit Array*. The *Numeric Value Array Editor* dialog box appears.
- 2 In the *Data entry* area of the dialog box, click the *Decimal* radio button at the right of the word *Format*.
- 3 In the *Current Values* text box, highlight the 0 (zero), and click *Remove*.
- 4 To create the new value, enter each element of the new value:
 - a Click in the *New value* text box.
 - b Type the individual element value.
 - c Click *Add*.

Configuring the IP Address of the Primary Server

Suboption 1 of option 184 defines the IP address of the VCX Primary Server. For each element in [Table 12](#), repeat steps 4 a, b, and c, listed at the beginning of this topic. As you add each element, it appears in the *Current values* list, above previously added values.

Add these elements in this order:

Table 12 Configuring the IP Address of the Primary Server

What You Type	Description
1	Enter 1 as the first suboption code for option 184.
4	The length of the argument that applies to this suboption. For option 184, suboption 1, the argument is an IP address, which is composed of four numerical fields (octets).
NOTE: The next four fields use 10.234.1.254 as an example IP address of the VCX Primary Server. Enter the IP address of your primary server.	
10	The first octet in the IP address.

Table 12 Configuring the IP Address of the Primary Server (continued)

What You Type	Description
234	The second octet in the IP address.
1	The third octet in the IP address.
254	The fourth octet in the IP address.

Configuring the IP Address of the Alternate Server

Suboption 2 of option 184 defines the IP address of the VCX Alternate Server. For each element in [Table 13](#), repeat steps 4 a, b, and c, listed at the beginning of this topic. As you add each element, it appears in the *Current values* list, above previously added values.

Add these elements in this order:

Table 13 Configuring the IP Address of the Alternate Server

Description	
2	Enter 2 as the second suboption code for option 184.
4	The length of the argument that applies to this suboption. For option 184, suboption 2, the argument is an IP address, which is composed of four numerical fields (octets).
NOTE: The next four fields use 10.234.1.253 as an example IP address of the VCX alternate server. Enter the IP address of your alternate.	
10	The first octet in the IP address
234	The second octet in the IP address
1	The third octet in the IP address
253	The fourth octet in the IP address

Voice VLAN Configuration

Suboption 3 of option 184 defines the Voice VLAN configuration for the VCX system. For each element in [Table 14](#), repeat steps 4 a, b, and c, listed at the beginning of this topic. As you add each element, it appears in the *Current values* list, above previously added values.

Add these elements in this order:

Table 14 Configuring the VLAN ID

	Description
3	Enter 3 as the third suboption code for option 184.
4	The length of the argument that applies to this suboption. For option 184, suboption 3, there are two arguments: VLAN ID: 2 bytes (possible values: 0 through 4095) VLAN Enable: 2 bytes (possible values: 1 = enabled and 0 = disabled)
NOTE: The next two fields use example data: 25 as the VLAN ID and 1 to enable it. Enter the appropriate information for your VLAN.	
25	VLAN ID
1	VLAN is enabled

Fail-Over Call Route Point Configuration

Suboption 4 for option 184 defines the fail-over route point and the associated dial string to be used by VCX devices in the event that neither the VCX Primary Server nor the VCX Alternate Server are available.

For each element in [Table 15](#), repeat steps 4 a, b, and c, listed at the beginning of this topic. As you add each element, it appears in the *Current values* list, above previously added values.

Add these elements in this order:

Table 15 Configuring the Fail-Over Call Route Point

What You Type	Description
4	Enter 4 as the fourth suboption code for option 184.
NOTE: The next eight fields show example data. Enter the information appropriate to your configuration.	

Table 15 Configuring the Fail-Over Call Route Point (continued)

What You Type	Description
10	<p>The length of the argument that applies to suboption 4 is determined by two elements:</p> <p>IP Address: The IP address of the device that is to be contacted if the VCX server cannot be reached. This requires 4 bytes, one for each octet in the IP address.</p> <p>Dial String: The number pattern that determines which calls can be connected to the fail-over device. Limit: 254 characters</p> <p>The format in which you enter the digits of the dial string is:</p> <ul style="list-style-type: none">■ 0 through 9: – Enter 00 through 09■ Wildcard: – Enter 0xAA which is the hexadecimal value for the asterisk (*) character. <p>Note: The asterisk character must be the last character in the dial string.</p> <p>Note: You can configure only one dial string in suboption 4.</p> <p>Example: The IP address is 192.168.15.254 and the fail-over dial string is 91*. This allows calls to be made to any number that begins with the digits 91.</p> <p>In this example, you enter 10 as the length of the argument (4 bytes for the IP address and 2 bytes for each of the three dial string digits).</p>
192	The first octet in the IP address
168	The second octet in the IP address
15	The third octet in the IP address
254	The fourth octet in the IP address
09	The first digit in the fail-over dial string (9)
01	The second digit in the fail-over dial string (1)
0xAA	The wildcard (asterisk) character, entered in hexadecimal format.

Completing the Configuration



After you have entered all elements in the new value, click *OK*. You return to the *Predefined Options and Values* dialog box. The values that you entered appear in the *Value* area of the dialog box under *Byte*.

The values appear in hexadecimal format although you entered them in decimal format.

To accept the values, click *OK*. You return to the *DHCP Microsoft Management Console* dialog box.

Activating Option 184

To activate option 184, decide whether you want to apply the option to a specific scope or globally, that is, to all scopes that are served by the DHCP server software.

To activate option 184 for a specific scope:

- 1 In the left pane of the *DHCP Microsoft Management Console* dialog box, find the scope that you want. Then highlight *Scope Options*.
- 2 Right click *Scope Options*, and, from the menu that appears, select *Configure Options*.

The *Scope Options* dialog box appears.

- 3 Scroll down in the *Available Options* list until you find the option that you just added (184 VCX in this example).
- 4 Enable the check box to the left of the option.
- 5 Click OK.

In the right pane, the option name now appears in the *Option Name* column. The *Vendor* column contains the word *Standard*. The values of the individual elements that you entered appear in the *Value* column.



The values appear in hexadecimal format although you entered them in decimal format.

To activate option 184 globally:

- 1 In the left pane of the *DHCP Microsoft Management Console* dialog box, highlight *Server Options*.
- 2 Right click *Server Options*, and from the menu that appears, select *Configure Options*. The *Server Options* dialog box appears.
- 3 Scroll down in the *Available Options* list until you find the option that you just added (184 VCX in this example).
- 4 Enable the check box to the left of the option.
- 5 Click OK.

In the right pane, the option name now appears in the *Option Name* column. The *Vendor* column contains the word *Standard*. The values of the individual elements that you entered appear in the *Value* column.



The values appear in hexadecimal format although you entered them in decimal format.

**Manually
Configuring a
Telephone**

All of the Option 184 parameters (with the exception of the Failover Route Point) can be manually configured on any 3Com telephone by using the Local User Interface (LUI).

For more information on configuring telephones, see [Chapter 9, "Installing Devices"](#).

B

AUTOMATED BRANCH OFFICE INSTALLATION

Overview

If your VCX system has several branch offices, you may want to automate as much as possible the installation process for branch office VCX servers and the PSTN Gateway connections to the public telephone system that are located in the branch offices. There are several preparation steps required, and if you are going to configure only a few branch offices, the amount of preparation may not be justified. It may be better to configure the branch office servers manually.

Preparation Steps

To automate the branch office installation procedures, you set up these items:

- **Trivial File Transfer Protocol (TFTP) Server** — A TFTP server is usually located in the regional office but wherever it is located, the DHCP server must know the IP Address. The configuration files for the branch office equipment reside on the TFTP server, and the locations of these files are specified as part of the configuration of the DHCP server.



3Com does not supply a TFTP server as part of the VCX system and recommends that customers not install TFTP server software on any VCX server. This appendix does not describe how to install or configure a TFTP server.

- **Configuration Files** — For each branch office there must be one configuration file for the VCX server and a different file for the PSTN Gateway. Configuration files contain information that is unique to the branch office. Each time you upgrade the software in the VCX server or the PSTN Gateway, you may have to update all of the configuration files.



The 3Com V6000 system requires two separate configuration files even though the VCX server and PSTN Gateway equipment reside in a single chassis. The units operate independently and each downloads its configuration file from the TFTP server.

- **DHCP Server** — A DHCP server must be configured to provide IP addresses and additional information to VCX branch office servers and PSTN Gateways when those devices request IP addresses. Before a software upgrade is done on a branch office VCX server, the DHCP configuration must be modified so that the server can properly respond to updated identification information that the branch office server will send.

This appendix provides guidance on how to configure two sample DHCP servers:

- Internet Systems Consortium (dhcpcd)
- Windows 2003 Server

Configuration Files

Configuration files are used to automate the configuration of the branch office VCX server and the PSTN Gateway connection to the telephone company's central office equipment, also located in the branch office.

For instructions on how to create the configuration files, see these descriptions:

- [Creating VCX Server Configuration Files](#)
- [Creating Media Gateway Configuration Files](#)

Creating VCX Server Configuration Files

To create a configuration file for a branch office VCX server, run the `vcx-createcfg` script on any VCX server on which the target VCX software version (the version to which you intend to upgrade the branch office server) has been installed. The VCX server on which you run the script can be configured as any one of the VCX configurations. It does not need to be a branch office configuration.

To create the configuration file:

- 1 Log in as *root* on the server.
- 2 Enter this command:

```
vcx-createcfg
```



Running the `vcx-createcfg` script as described here does not disrupt the normal operation of the VCX branch office server.

- 3 The VCX Configuration File Creation Utility script starts. Answer each of the questions, and after you have answered the last question, the wizard

creates the configuration file and exits. See [“Sample Script For Creating a Branch Office Configuration File”](#), next.

- 4 Move the configuration file to the appropriate directory on the TFTP server.
- 5 Repeat this process for each branch office in your VCX system.

Sample Script For Creating a Branch Office Configuration File

The sample script in this section was run on an IP Telephony and Messaging Server that had VCX software releases 7.0.1c and 7.0.2c installed. The configuration file that was created was for an IP Telephony Server located in a branch office. Modify the information in this sample script to conform to your VCX system configuration.

vcx-createcfg

```
-----
----- VCX Configuration File Creation Utility -----
-----
```

This utility creates a VCX configuration file for use with another VCX system, such as in a branch office. The version of VCX with which the configuration file will be used must be installed on this system, although this system can be running a different version. To abort, press Control-C.

Create the configuration file for which version of VCX?

1. VCX.7.0.1c.

2. VCX.7.0.2c.

Enter your choice (1 to 2) : **2**

The script lists all of the VCX software versions that are available. Select the version that you want. You cannot select the software version that is currently running on this server.

Enter the new configuration filename : **branch04**

Enter the name of the configuration file that you want to create. The file name must be unique (in this directory?).

```
-----
```

Sample vcx-createcfg Script (continued)

What is the configuration type of the system on which the new file will be used?

- * 1. IP Telephony and IP Messaging Services
- 2. Call Records Service
- 3. Call Processing Services for IP Telephony
- 4. Authentication and Directory Services for IP Telephony
- 5. IP Telephony Services
- 6. IP Messaging Services

* : Indicates configuration type of THIS system.

Enter your choice (1-6) : 5

You can choose any configuration type, regardless of the configuration type of the server on which the script is running.

----- Preparing to Create -----

The script prints a confirmation of the parameters that you have selected.

VCX version : VCX.7.02c
 New configuration file : branch04
 VSBOM file (config type) : VSBOM-softswitch.xml

 ----- Welcome to the VCX Service Configuration Wizard -----

This wizard sets up VCX services.

Do you wish to configure services at this time? [Y] :

Press the Enter or Return key to accept the default answer (Y). The script presents information and choices that are appropriate for the target server, not the server on which the script is running.

----- Configuring VCX Services -----

This server runs IP Telephony services. IP Messaging is provided on a separate server.

Sample vcx-createcfg Script (continued)

Please enter the role of this system:

- 1 - This is a regional office, primary IP Telephony server.
- 2 - This is a regional office, secondary IP Telephony server.
- 3 - This is a branch office IP Telephony server.
- 4 - This server operates standalone.

Enter your choice by number [1] : **3**

This sample script creates a configuration file for a branch office IP Telephony Server.

Services running on this system need to communicate with other systems and devices in order to operate. In the next series of questions, you will be asked for information about these, and for other global parameters.

VCX systems can have one or two IP addresses. If the system has or will use only a single Ethernet interface, enter its IP address here. If the system has two Ethernet interfaces and both will be used, enter the IP address of the first one here.

Enter the system's first IP address :

Servers in branch offices have only one Ethernet interface (eth0) enabled. Enter the IP address of eth0.

If the VCX system has two Ethernet interfaces and both will be used, enter the IP address of the second one here. If the system has a single interface or only one will be used, leave this entry blank.

Enter the system's second IP address :

Servers in branch offices have only one Ethernet interface (eth0) enabled. Press the Enter or Return key to indicate that eth1 is not enabled and has no IP address.

The site ID is a unique value which identifies a particular site in a multi-site VCX installation. It is a string of up to 22 characters, consisting of letters and/or numbers. No punctuation characters, spaces, or tabs may be used.

Enter a unique identifier for this site :

Enter an identification string for the site at which the IP Telephony server is located.

Sample vcx-createcfg Script (continued)

The secondary Call Processor acts as a backup if the primary is down or unreachable.

IP address of the secondary Call Processor :

Call Processor tasks are associated with the eth1 Ethernet interface. Enter the IP address of eth1 on the Secondary Call Processor Server (typically located in the regional office with which the target branch office IP Telephony Server is associated).

The secondary Authentication & Directory Service acts as a backup to the primary Authentication & Directory Service and provides authentication, authorization, and certain user-specific functions.

IP address of the secondary Auth & Dir Service :

Authentication and Directory services are associated with the eth0 Ethernet interface. Enter the IP address of eth0 on the Secondary Authentication and Directory Server (typically located in the regional office with which the target branch office IP Telephony Server is associated).

The primary IP Messaging Service provides voice mail and other messaging services. In some configurations a dedicated IP Messaging Server runs this service.

IP address of the primary IP Messaging Service :

IP Messaging tasks are associated with the eth0 Ethernet interface. Enter the IP address of eth0 on the Primary IP Messaging Server (typically located in the regional office with which the target branch office IP Telephony Server is associated).

The secondary IP Messaging Service is a backup for voice mail and other messaging services. In some configurations a dedicated IP Messaging Server runs this service.

IP address of the secondary IP Messaging Service :

IP Messaging tasks are associated with the eth0 Ethernet interface. Enter the IP address of eth0 on the Secondary IP Messaging Server (typically located in the regional office with which the target branch office IP Telephony Server is associated).

Sample vcx-createcfg Script (continued)

The primary Media Gateway acts as the interface between the VCX IP Telephony system and the external telephone network.

IP address of the primary Media Gateway :

Enter the IP address of the primary Media Gateway. For a branch office this gateway is typically located in the branch office.

The secondary Media Gateway is an additional interface between the VCX IP Telephony system and the external telephone network. If there is no secondary Media Gateway, leave this entry blank.

IP address of the secondary Media Gateway :

Typically a branch office has a single Media Gateway. Press the Enter or Return key to indicate that there is no secondary Media Gateway.

The Call Records Service consolidates call accounting records for the VCX system. It is only enabled on one server for an entire installation.

Enable the Call Records Service (Y/N)? [N] :

Typically, a branch office server does not run the Call Records service. Press the Enter or Return key to accept the default answer (N).

The script now prints a summary of the answers that you have provided and asks if you want to change any of them.

----- Summary of Global Parameters -----

```

      First IP Address (eth0) :
      Second IP Address (eth1) : (none)
          Site Identifier : branch04
      Secondary Call Processor :
      Secondary Auth & Dir Service :
      Primary IP Messaging Service :
      Secondary IP Messaging Service :
          Primary Media Gateway :
          Secondary Media Gateway : (none)
      Enable Call Records Service : N

```

Do you wish to change any of the values shown? [N] :

Press the Enter or Return key to accept the default answer (N), or enter Y to change one or more of the values.

Sample vcx-createcfg Script (continued)

CAUTION: Next, the system prompts you to enter the passwords for the Root, Oracle, Tomcat, Cworks, and VCX accounts. 3Com strongly recommends that customers change the default passwords for all of these accounts for security reasons.

----- Configuring additional parameters for System -----

Root account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Oracle account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Tomcat account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Cworks account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

VCX account password. A blank entry means 'no change'.

```
Password                                     :
Password (confirm)                           :
```

Do you wish to change any of the System parameters? [N] :

Press the Enter or Return key to accept the default answer (N), or enter Y to change one or more of the values.

Sample vcx-creatcfg Script (continued)

----- Configuring additional parameters for Call Processor -----

Trusted Endpoints are allowed to send SIP Notify messages to the Call Processor. Certain Trusted Endpoints are configured automatically. Additional Trusted Endpoints can be entered here. Enter a blank input to indicate that all endpoints have been entered.

Additional Trusted Endpoint IP address

TrustedAddress :

Enter the IP address of any SIP devices or servers that you want the VCX Call Processing Servers to treat as trusted endpoints. When you have finished, press the Enter or Return key when prompted for another IP address.

Do you wish to change any of the Call Processor parameters? [N] :

Press the Enter or Return key to accept the default answer (N), or enter Y to change one or more of the values.

----- Configuring additional parameters for Auth & Dir Service -----

At a branch office, the password for access to the regional office system's 'cworks' account is required. At a regional office or on a standalone system, specify the 'cworks' password for access to *this* system.

Login Password : *****

Login Password (confirm) : *****

Press the Enter or Return key twice to accept the existing password. To change the password for the cworks account, delete the asterisk characters () and type in a new password twice (once for the first prompt and again on the confirm line).*

Do you wish to change any of the Auth & Dir Service parameters? [N] :

Press the Enter or Return key to accept the default answer (N), or enter Y to change one or more of the values.

Sample vcx-createcfg Script (continued)

----- Configuring additional parameters for Common Agent -----

The Trap Destination specifies the IP address to be used as a destination when this system sends SNMP traps.

Trap Destination :

Enter the IP address of the PC or other system on which you are running your network management software (for example, EMS).



CAUTION: This parameter can be configured only in the .ini file. If you attempt to configure it through the browser interface, all calls on the Media Gateway are interrupted and the SNMP trap destination is not set.

The Trap Community String provides a community string to be used when sending SNMP traps to the trap destination.

Trap Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

The Write Community String specifies the community string to be used by a management station when sending write requests to this system.

Write Community String : private



CAUTION: Press the Enter or Return key to accept the default answer (private). 3Com strongly recommends that users change this string for security reasons.

The Read Community String specifies the community string to be used by a management station when sending read requests to this system.

Read Community String : public



CAUTION: Press the Enter or Return key to accept the default answer (public). 3Com strongly recommends that users change this string for security reasons.

Sample vcx-createcfg Script (continued)

Common Agent supports a management station authentication feature. Answering 'Y' here will allow only a set of pre-identified SNMP management stations to manage the system. (You will be able to enter IP addresses of authorized management stations next. Authorized management stations can also be configured using EMS or another management station at a later point.)

Enable management station authentication? [N] :

Press the Enter or Return key to accept the default answer (N). To enable management station authentication, enter Y. The script will then accept the IP addresses of up to four network management stations.

Do you wish to change any of the Common Agent parameters? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script presents each of the items that you have entered during the most recent part of the script and allows you to accept the value or change it.

Initial VCX configuration is now complete. Before the information just entered is saved, you have the option of reviewing and changing parameters for each VCX service at a detailed level. This is not needed in most cases and is recommended only for advanced users.

Do you wish to review service parameters in detail? [N] :

Press the Enter or Return key to accept the default answer (N). If you answer Y to this question, the script enters a mode in which you can review and modify low-level configuration parameters for each service. This is not needed for standard configurations and using it successfully requires substantial VCX configuration expertise. 3Com does not support this mode of making configuration changes.

Please wait while the wizard completes.



The script now saves all of the configuration parameters and exits.

When the prompt reappears, the configuration file has been created.

End of Sample vcx-createcfg Script

Creating Media Gateway Configuration Files

To create a configuration file for a Media Gateway:

- Copy the text in the sample file from this section into a file.
- Edit the new file to adapt it to your system configuration.
- Use the comments within the file to help you modify the file.

Formatting Guidelines for Configuration Files

When you modify a Media Gateway configuration file, keep these guidelines in mind.

- Lines beginning with a semi-colon (;) as the first character are ignored.
- A Carriage Return must be the final character of each line.
- The number of spaces before and after "=" is not relevant.
- If there is a syntax error in the parameter name, the value is ignored.
- Syntax errors in the parameter value field can cause unexpected errors (because parameters may be set to the wrong values).
- Sub-section names are optional.
- String parameters, representing file names, for example CallProgressTonesFileName, must be placed between two inverted commas ('...').
- The parameter name is NOT case-sensitive; the parameter value is not case-sensitive except for coder names.
- The ini file should be ended with one or more carriage returns.

Sample Media Gateway Configuration File

```
;*****
;** Ini File **
;*****
```

Typically, an INI file is produced by exporting the file from a working V6000 Media Gateway. This sample file corresponds to the default file shipped with a V6000 Media Gateway. The export process records several system parameters as comment lines at the beginning of the INI file. Modify these comment lines when you create INI files for other V6000 Media Gateways so that the files reflect the parameters of the target unit.

```
;Board: Mediant 1000
;Serial Number: 328268
;Slot Number: 1
;Software Version: 4.60A.022.003
;Board IP Address: 10.230.64.100
;Board Subnet Mask: 255.255.255.0
;Board Default Gateway: 10.230.64.254
;Ram size: 64M   Flash size: 16M
;Num DSPs: 2   Num DSP channels: 8
;Profile: NONE
;-----
```

```
;To support LAN port redundancy
MIIREDUNDANCYENABLE = 1
```

To enable the second of the two LAN ports to act as a failover port for the other, set MIIREDUNDANCYENABLE to 1.

```
BaseUDPport = 6000
```

Verify that the the UDP port number is set to 6000.

```
DisableSNMP = 0
```

Set DisableSNMP to 1 if you do not want to send SNMP trap information from the V6000 to any SNMP management station(s). If you set it to 0, you can then specify up to 5 management stations. For each station that you want to specify, set the SNMPManagerIsUsed value to 1 and enter the IP address on the corresponding SNMPManagerTableIP line.

```
SNMPManagerIsUsed_0 = 1
SNMPManagerIsUsed_1 = 0
SNMPManagerIsUsed_2 = 0
SNMPManagerIsUsed_3 = 0
SNMPManagerIsUsed_4 = 0
SNMPManagerTableIP_0 = 10.230.64.25
```

Sample Media Gateway Configuration File (continued)

```
SNMPManagerTableIP_1 = 0.0.0.0
SNMPManagerTableIP_2 = 0.0.0.0
SNMPManagerTableIP_3 = 0.0.0.0
SNMPManagerTableIP_4 = 0.0.0.0
```

```
SNMPTrapManagerHostName = ''
```

One of the five available SNMP managers can be defined using a Fully Qualified Domain Name. The gateway tries to resolve the host name at start up. Once the name is resolved (IP is found), the resolved IP address replaces the last entry in the trap manager table (defined by the parameter 'SNMPManagerTableIP_x') and the last trap manager entry of snmpTargetAddrTable in the snmpTargetMIB. The port is 162 (unless specified otherwise), the row is marked as 'used' and the sending is 'enabled'.

```
SyslogServerIP = 10.230.64.57
```

Enter the IP address of the VCX server that is located in the same chassis as the Media Gateway. The default port is 514.

```
EnableSyslog = 1
```

Set this value to 1 to enable the Media Gateway to send system log information and error messages to the log server. Typically, system log information is used only for troubleshooting purposes.

```
EnableLANWatchdog = 1
```

Set this value to 1 to enable the Media Gateway to restart when a LAN failure is detected.

```
DHCPEnable = 1
```

When the Media Gateway starts, it first attempts to contact a BOOTP server. If no BOOTP server responds and if DHCPEnable is set to 1, the gateway attempts to obtain an IP address from a DHCP server.

```
[Analog Params]
LifeLineType = 2
```

Set this parameter to 2 to activate the lifeline under any of these conditions:

- *The media gateway loses power*
- *The network link is physically disconnected*
- *The network link fails for any reason*

Sample Media Gateway Configuration File (continued)

```
FXSLoopCharacteristicsFilename = 'COEFFICIENT_M1K_FXS.dat'
FXOLoopCharacteristicsFilename = 'COEFFICIENT_M1K_FXO.dat'
```

These parameters hold the names of the characteristics files for the FXS and FXO analog gateways. Do not modify these values.

```
FarEndDisconnectSilenceMethod = 0
```

Specify the method by which the Media Gateway detects silence during a call. Silence is detected based on these values:

- **0 — Disabled.** *This is the default setting.*
- **1** — *Based on a specified number of silence packets that have been transmitted or received.*
- **2** — *By the energy and voice detectors in the Media Gateway.*
- **3** — *By the number of silence packets and the energy and voice detectors.*

```
FarEndDisconnectSilencePeriod = 20
```

Specify, in seconds, the duration of a period of silence which will cause a call to be disconnected. Minimum value is 10 seconds. Maximum value is 28800 seconds (8 hours). The default value is 20.

```
CallProgressTonesFilename = 'CALL_PROGRESS_M1K_NO_HOLD_US.dat'
```

The name of the call progress tones file. Do not modify this value.

```
FlashHookPeriod = 800
```

Set this parameter to a value between 300 and 1500 msec to control:

- *The detection of a hook flash on a telephone connected to an FXS port*
- *The generation of a hook flash on an FXO port. Note that you must add 90 msec to this number to generate a hook flash of the desired duration. For example, to generate a hook flash of 450 msec, set this value to 540 msec.*

```
ControlDiffServ = 46
```

Sets the Differentiated Service value in the SIP packets. The default value is 0 (zero). The minimum and maximum values are 0 and 63.

```
IPDiffServ = 46
```

Sets the Differentiated Service Code Point value that is assigned to RTP packets. This value is used by DiffServ compatible routers to prioritize how packets are sent. The minimum and maximum values are 0 and 63.

Sample Media Gateway Configuration File (continued)

```
V22ModemTransportType = 0
V23ModemTransportType = 0
V32ModemTransportType = 0
V34ModemTransportType = 0
```

Specify the transport type for these modems. Possible values are:

- **0** — *Transparent*
- **1** — *Relay*
- **2** — *Bypass*

NOTE: *V32ModemTransportType applies to V.32 and V.32bis modems.*

NOTE: *V34 ModemTransportType applies to V.34 and V.90 modems.*

```
FaxRelayRedundancyDepth = 2
```

Specify the number of times that each fax relay payload is retransmitted to the network. Possible values are 0 (default), 1, and 2.

```
FaxModemBypassCoderType = 1
```

Specify the type of coder to be used when performing fax modem bypass. Possible values are:

- **0** — *G711 A-law 64 (default)*
- **1** — *G711 μ -law*
- **4** — *G726 32*
- **11** — *G726 40*

```
BasicRTPPacketInterval = 3
```

Set this parameter using the web browser interface. Navigate to Protocol Definition > Coders and set the value there. The value that you select appears in the INI file when the file is exported.

```
CNGDetectorMode = 2
```

Set this value to determine whether you want fax sessions to start when the fax calling tones are detected. Possible values are:

- **0** — *Don't detect fax calling tones (default)*
- **1** — *Not applicable*
- **2** — *Detect fax calling tones and start the fax session.*

Sample Media Gateway Configuration File (continued)

```
EnableStandardSIDPayloadType = 1
```

Set this value to determine whether G.711 SID packets are sent using a proprietary method or according to RFC 3389. Possible values are:

- **0** — Use proprietary method
- **1** — Use RFC 3389 method

```
[WEB Params]
```

```
UseRProductName = '3Com-VCX-6000'
```

This string of characters is sent by the V6000 Media Gateway during DHCP requests.

```
LogoFileName = '3Com_Logo.gif'
```

This file contains the 3Com logo for display on web browser screens.

```
LogoWidth = '96'
```

This parameter specifies the display width for the 3Com logo on web browser screens.

```
WebLogoText = '3Com'
```

This string appears when you hover the cursor over the 3Com logo in a web browser screen.

```
UseProductName = 1
```

This parameter controls whether the default product name is used. Possible values are:

- **0** — Use the default product name string
- **1** — Use the string specified in UseRProductName

```
[SIP Params]
```

```
ENABLECALLERID = 1
```

Disable (0, default) or enable (1) caller ID information to be passed to analog telephones (FXS connections) or to the telephone company equipment (FXO connections).

```
MAXDIGITS = 30
```

Specify the maximum number of digits that a user can dial. Possible values are 1 through 49.

```
ENABLECALLWAITING = 1
```

Enable (1) or Disable (0) call waiting for FXS ports.

Sample Media Gateway Configuration File (continued)

PLAYRBTONE2IP = 1

Set this parameter to control whether the ringback (RB) tone is played on the IP side of a call. Possible values are:

- **0** — Don't play ringback tone
- **1** — Ringback tone is played after the SIP 183 session progress response has been sent.

NOTE: To enable the Media Gateway to send a 183 response, set EnableEarlyMedia to 1.

NOTE: If EnableDigitDelivery is set to 1, the Media Gateway does not play ringback tones and does not send a 183 response.

ISSPECIALDIGITS = 1

Enable (1) or Disable (0) the use of the star (*) or pound/hash (#) buttons during the dialing of a number. **NOTE:** If you disable this feature, users can still press either of these two keys as the first key in a dialing sequence.

REGISTRATIONTIME = 3600

Set the duration (in seconds) of the registration of a SIP telephone. The default value is 3600 (1 hour).

DISCONNECTONBUSYtone = 0

Set this parameter to control whether an FXO call is released when either Busy or Fast Busy tones are detected.

- **0** — Do not release the call when Busy or Fast Busy is detected.
- **1** — Release the call when Busy or Fast Busy is detected.

ISPROXYUSED = 1

Define whether a proxy server is used (1) or not (0). **NOTE:** If no proxy is used, you must configure the "Tel to IP Routing" table.

ISREGISTERNEEDED = 1

Define whether the Media Gateway registers (1) with the proxy each time that it is powered up and when each registration interval expires, or does not (0) register.

Sample Media Gateway Configuration File (continued)

AUTHENTICATIONMODE = 0

Set the authentication mode for the Media Gateway. Possible values are:

- 0 — *Registration and authentication occur for each endpoint.*
- 1 — *Registration and authentication occur once for the gateway.*
- 2 — *Not applicable to the V6000.*
- 3 — *(Default) Registration and Authentication occur for FXS endpoints only.*

ISWAITFORDIALTONE = 1

Specify whether outbound calls over FXO ports occur immediately after the port seizes the PSTN line (0) or after the port detects dial tone (1, default).

ISTWOSTAGEDIAL = 0

Enable one-stage dialing (0) or two-stage dialing. In one-stage dialing the FXO module connects the user to the telephone company's equipment and the user then dials the destination number. In two stage dialing (1) the FXO module waits until the user has dialed a number and then passes the number to the telephone company equipment. Two-stage dialing is the default.

ENABLECURRENTDISCONNECT = 1

Enable (1) or disable (0, default) the disconnection of calls when the FXO module detects the current disconnect signal.

ENABLEHOLD = 1

Enable (1) or disable (0, default) the ability of users to perform a hookflash to place a call on hold and retrieve a call from hold.

NOTE: Gateways at both ends of the call must be configured to support this feature.

ENABLEFORWARD = 1

Enable (1) or disable (0, default) the ability of users to forward a call.

NOTE: Gateways at both ends of the call must be configured to support this feature.

NOTE: For FXS modules a Call Forward table must be defined.

Sample Media Gateway Configuration File (continued)

CDRREPORTLEVEL = 2

Determine the amount of Call Detail Record information that is sent to the Syslog Server. Possible values are:

- 0 — No information is sent (default).
- 1 — Information is sent at the end of each call.
- 2 — Information is sent at the beginning and at the end of each call.

CHANNELSELECTMODE = 1

Select the mode by which channels are selected for outgoing calls. Possible values are:

- **0 — By phone number:** Select the gateway port according to the number that is being called. This mode requires an Endpoint Phone Number table. This is the default mode.
- **1 — Cyclic Ascending:** Select the next available channel in an ascending cycle order. Always select the next higher channel number in the hunt group. When the gateway reaches the highest channel number in the hunt group, it selects the lowest channel number in the hunt group and then starts ascending again.
- **2 — Ascending:** Select the lowest available channel. Always start at the lowest channel number in the hunt group and if that channel is not available, select the next higher channel.
- **3 — Cyclic Descending:** Select the next available channel in descending cycle order. Always select the next lower channel number in the hunt group. When the gateway reaches the lowest channel number in the hunt group, it selects the highest channel number in the hunt group and then starts descending again.
- **4 — Descending:** Select the highest available channel. Always start at the highest channel number in the hunt group and if that channel is not available, select the next lower channel.
- **5 — Number + Cyclic Ascending:** First select the gateway port according to the called number that is being called. (This mode requires an Endpoint Phone Number table). If the called number isn't found, then select the next available channel in ascending cyclic order. **NOTE:** If the called number is found, but the port associated with this number is busy, the call is released.

Sample Media Gateway Configuration File (continued)

GWDEBUGLEVEL = 5

Specify the level of logging when in debug mode. Possible values are:

- **0** — *Debug is disabled (default)*
- **1** — *Flow debugging is enabled*
- **2** — *Flow and device interface debugging are enabled*
- **3** — *Flow, device interface and stack interface debugging are enabled*
- **4** — *Flow, device interface, stack interface and session manager debugging are enabled*
- **5** — *Flow, device interface, stack interface, session manager and device interface expanded debugging are enabled.*

ENABLEPROXYKEEPALIVE = 1

Enable (1) or disable (0, default) the ability of the Media Gateway to send a keep alive signal to the proxy server. The frequency with which the signal is sent is controlled by the ProxyKeepAliveTime value.

ENABLEEARMEDIA = 1

Enable (1) or disable (0, default) the ability of the Media Gateway to send a 183 Progress response with the SDP, allowing a media stream to be set up prior to the time that the call is answered. If this feature is disabled, the call rings immediately.

PROXYNAME = '1.1.1.1'

Enter the host part of the SIP URI for any FXS endpoint. For example, if the SIP URI is sip:1000@1.1.1.1, enter 1.1.1.1 as the PROXYNAME.

VCX systems use the dialing domain as the host part of the SIP URI. 3Com recommends that customers use 1.1.1.1 as the dialing domain for all VCX servers.

SIPGATEWAYNAME = '1.1.1.1'

Enter the host part of the SIP URI for any FXS endpoint. For example, if the SIP URI is sip:1000@1.1.1.1, enter 1.1.1.1 as the SIPGATEWAYNAME.

VCX systems use the dialing domain as the host part of the SIP URI. 3Com recommends that customers use 1.1.1.1 as the dialing domain for all VCX servers.

Sample Media Gateway Configuration File (continued)

USERNAME = 'VCX-V6000'

Enter VCX-V6000 as the user name to be used for registration and authentication. **NOTE:** This parameter is used only if the Authentication Mode is "Authentication Per Gateway."

DEFAULTRELEASECAUSE = 34

When an outgoing call over an FXO line is released by the gateway, a cause is associated with the release. Specify a cause that will be used if no other release cause can be found. Possible values are:

- **3** — NO_ROUTE_TO_DESTINATION
- **34** — NO_CIRCUIT_AVAILABLE
- **27** — DESTINATION_OUT_OF_ORDER

PROGRESSINDICATOR2IP = 0

Select the type of progress indicator that you want the gateway to send. Possible values are:

- **0** — The gateway sends "180 Ringing" for calls placed to FXS endpoints or to a PBX over an FXO line.
- **1** — The gateway sends "183 Session in Progress" if the EnableEarlyMedia parameter is enabled (set to 1).
- **8** — Same as 1.
- **-1** — Not configured. Default values are used.

The choice Depending on the value of EnableEarlyMedia, the gateway should send one of these progress indicators

ISFALLBACKUSED = 1

Enable (1) or disable (0) the ability of the gateway to use the internal "Tel to IP" routing table whenever it cannot contact a Proxy. When the gateway finds a Proxy, it switches from using the internal routing table to using proxy routing again.

ISPROXYHOTSWAP = 1

Enable (1) or disable (0) the ability of the gateway to send SIP INVITE messages to a secondary SIP Proxy if the primary proxy does not respond after the configured number of retries.

PROXYREDUNDANCYMODE = 1

Enable (1) or disable (0) the gateway to always try to work with the primary Proxy. If this parameter is set to 0 and the primary proxy fails, the

gateway continues to work with the last active proxy until a proxy failure occurs.

`ALTROUTINGTEL2IPENABLE = 1`

Alternate routing of calls is possible if the initial destination cannot be pinged or if poor quality of service (QoS) is detected. Possible values are:

- **0** — *Disable alternate routing.*
- **1** — *Enable alternate routing*
- **2** — *Provide read-only information on the quality of service of the destination IP address. Alternate routing is disabled.*

`ALTROUTINGTEL2IPMODE = 3`

If alternate routing is enabled, select an alternate routing mode. Possible values are:

- **0** — *Alternate routing is not used.*
- **1** — *Alternate routing is performed if a ping to the initial destination fails.*
- **2** — *Alternative routing is performed if a poor quality of service is detected.*
- **3** — *Alternative routing is performed if either a ping failed or poor quality of service was detected.*

`GWAPPDELAYTIME = 0`

*Specify, in seconds, the amount of time that the gateway's operation is delayed after a reset cycle. The default value is 0 (zero). **NOTE:** Increasing the delay can overcome connection problems caused by some LAN routers.*

`DISCONNECTONBROKENCONNECTION = 0`

Enable (1) or disable (0) the disconnection of a call if RTP packets are not received for a defined time period (see `BrokenConnectionEventTimeout`). The default timeout value is 10 seconds. This feature cannot be used if silence compression is enabled.

`SENDINVITETOPROXY = 1`

Enable (1) or disable (0) the sending of INVITE messages (that are associated with Transfer or Redirect actions) to the proxy, rather than directly to the URL. This feature cannot be used unless a SIP Proxy is used and the parameter "AlwaysSendtoProxy" is disabled (0).

Sample Media Gateway Configuration File (continued)

MWISERVERIP = '0.0.0.0'

Specify the IP address of a Message Waiting Indicator (MWI) server. For VCX systems, specify the IP address of the primary IP Messaging Server.

ASSERTEDIDMODE = 1

Specify one of these modes for sending Caller ID information in an INVITE message:

0 — No Caller ID information is sent (default).

1 — P-Asserted header includes Caller ID. P-Asserted headers are used among trusted SIP entities.

2 — P-Preferred header includes Caller ID. P-Preferred headers are used from a user agent to a trusted proxy.

MWIANALOGLAMP = 1

For FXS modules only, enable (1) or disable (0, default) sending a voltage to a connected analog telephone to activate the telephone's Message Waiting Indicator lamp.

MWIDISPLAY = 1

Enable (1) or disable (0, default) sending Message Waiting Indicator information (MWI FSK Message) to the display of a telephone.

ENABLEMWI = 1

Enable (1) or disable (0, default) the Message Waiting Indicator feature.

NOTE: The Media Gateway can receive MWI information but not send it.

USEGATEWAYNAMEFOROPTIONS = 1

Enable (1) or disable (0, default) the use of the Media Gateway's IP address in keep-alive OPTIONS messages.

ADDTON2RPI = 0

Enable (1, default) or disable (0) the addition of Number Plan and Type to Remote Party ID Header.

ISFAXUSED = 1

*Enables (1) or disables (0, default) T.38 fax relay. **NOTE:** If you enable this feature, "FaxTransportMode" must also be enabled (set to 1).*

Sample Media Gateway Configuration File (continued)

GWREGISTRATIONNAME = 'VCX-V6000'

Specify the user name that is included in From and To headers of Register messages. This parameter applies only if AuthenticationMode is enabled (set to 1). The default value is an empty string. If you do not change the default value, the parameter Username is used in place of GWREGISTRATIONNAME.

HOTLINETONEDURATION = 5

Set this parameter to control how long to wait, in seconds, for the user to dial some digits before making a call to a preconfigured number. Possible values range from 0 (zero) to 60 seconds. The default value is 5 seconds.

ENABLETRANSFER = 1

Enable (1) or disable (0, default) the ability of a user to transfer a call from an analog telephone by using a hook flash. NOTE: The equipment at both ends of the call must support this feature and the parameter "EnableHold" must be enabled (set to 1).

WAITFORDIALTIME = 0

For outgoing FXO calls, specify a delay time, in milliseconds, between the time that the line is seized and dialing starts. The default value is 1000 msec.

CODERNAME = g711Ulaw64k,20

CODERNAME = g729,20

CODERNAME_1 = g711Ulaw64k,20

CODERNAME_1 = g729,20

CODERNAME_2 = g729,20

CODERNAME_2 = g711Ulaw64k,20

Enter the names and packetization times for each CODEC that you use. Possible CODEC names are:

- **g711A1aw64k** — G.711 A-law
- **g711U1aw64k** — G.711 μ -law
- **g7231** — G.723.1 6.3 kbps (default)
- **g7231r53** — G.723.1 5.3 kbps
- **g726** — G.726 ADPCM 32 kbps (Payload Type = 35)
- **g729** — G.729A

Sample Media Gateway Configuration File (continued)

For each CODEC, enter one of these packetization times:

- **G.711** — 10, 20, 30, 40, 50, 60, 80, 100, 120 (default=20)
- **G.723** — 30, 60, 90, 120, 150 (default = 30)
- **G.726** — 10, 20, 40, 60, 80, 100, 120 (default=20)
- **G.729** — 10, 20, 30, 40, 50, 60, 80, 100, 120 (default=20)

PROXYIP = 10.230.155.70

Enter the IP address of the primary SIP proxy. If you want to specify the IP address of an alternate SIP proxy, enter a second PROXYIP line.

TXDTMFOPTION = 4

Enable (4) or disable (0, default) to enable the Media Gateway to negotiate the RFC 2833 payload type between the local and remote sites using Session Description Protocol (SDP).

TELPROFILE_1 = Default Tel Profile,1,0,1,70,7,46,46,-11,0,-5,0,0,0,1

*The INI file contains telephone profiles that you configured in the web browser screens. Up to 4 telephone profiles can be defined. Navigate to **Protocol Management > Profile Definitions > TelProfile Settings**. The parameters are:*

- *Profile Name* — A name that helps to distinguish this profile from the other three profiles.
- *Preference* — A priority (1 through 10) that determines whether to apply the parameters of the telephone profile or the parameters of an IP profile to a call (the lower Preference number is used). If the Preference number of the telephone profile and the IP profile match, the parameters that are common to both profiles are used for the call.
- *Coder Group ID* — An ID selected from a dropdown list.
- *IsFaxUsed* — Yes or No, selected from a dropdown list.
- *DJBufMinDelay* — A delay, in milliseconds, between 0 (zero) and 150 msec. The default is 70 msec.
- *DJBufOptFactor* — An optimizing factor with values from 0 (zero) to 13. The default is 7. For non-data calls, the maximum value is 12. Set this value to 13 for data (fax and modem) calls.

Sample Media Gateway Configuration File (continued)

- *IPDiffServ* — Sets the Differentiated Service Code Point value that is assigned to RTP packets. This value is used by DiffServ compatible routers to prioritize how packets are sent. The minimum and maximum values are 0 and 63.
- *ControllPDiffServ* — Defines the value of the DiffServ field in the IP header for SIP messages. Values range from 0 (zero, default) to 63.
- *DTMFVolume* — The volume, specified in dBm, of DTMF tones sent to the Public Telephone Switched Network (PSTN). Values range from -31 dBm to 0 dBm in 1 dBm steps. The default is -11 dBm.
- *InputGain* — The gain control for received signals, specified in dB. Values range from -32 dB to 31 dB. The default value is 0 dB. NOTE: This parameter should not be changed except by users with an advanced knowledge of the Media Gateway. Changing it affects other Media Gateway functions.
- *VoiceVolume* — The gain control for voice, specified in dB. Values range from -32 dB to 31 dB. The default value is 0 (zero) dB.
- *EnableReversePolarity* — Disable (0) or enable (1) the ability of the FXS module to reverse the line polarity on call answer if the polarity reversal service has been enabled. The FXS module releases the call when a second polarity reversal signal is detected.
- *EnableCurrentDisconnect* — Disable (0) or enable (1) the ability of the FXO module to disconnect a call when the Current Disconnect signal is detected. The default is 0 (disabled).
- *EnableDigitDelivery* — Disable (0) or enable (1) the ability of the FXO and FXS modules to send DTMF digits to the port after the line becomes active (offhook for FXS or seized for FXO).
- *ECE* — Disable (0) or enable (1) echo cancellation.

Sample Media Gateway Configuration File (continued)

```
[MODULE 0]
ENABLECALLERID_0 = 1
ENABLECALLERID_1 = 1
[MODULE 1]
ENABLECALLERID_0 = 1
ENABLECALLERID_1 = 1
[MODULE 0]
ENABLECALLERID_2 = 1
ENABLECALLERID_3 = 1
```

For the two FXS ports and the four FXO ports, disable (0) or enable (1) the Caller ID feature.

```
;-----
; Phone of each end point, trunk groups and channel selection mode
;-----
```

```
;FXO Module
[Module 0]
TrunkGroup_1 = 1-4,101
```

For the four FXO ports, define the starting extension number. Other ports are assigned extension numbers in sequence.

```
;FXS Module
[Module 1]
TrunkGroup_2 = 1-2,201
```

For the two FXS ports, define the starting extension number. Other ports are assigned extension numbers in sequence.

Sample Media Gateway Configuration File (continued)

```
;The FXO channels, Trunk group #1, will be selected according to
;"Cyclic Ascending (next available channel)
;
;The FXS channels, Trunk group #2, will be selected according to
;their Phone Numbers
TrunkGroupSettings = 1,1
TrunkGroupSettings = 2,0
```

For each trunk group, specify these parameters:

- *Hunt Group ID*
- *Channel Select Mode*
 - 0 — By phone number
 - 1 — Cyclic Ascending
 - 2 — Ascending
 - 3 — Cyclic Descending
 - 4 — Descending
 - 5 — Number + Cyclic Ascending

```
;-----
; HuntGroup Routing Table
;-----
```

```
;Incoming IP calls with called number: 201 to 202 will be
;routed to FXS module, all other calls will be routed to FXO
;module.
PSTNPrefix = [201-202]#,2
PSTNPrefix = *,1
```

End of Sample Media Gateway Configuration File

ISC Server

This section describes how to configure DHCP services on a DHCP server (dhcpd) from the Internet Systems Consortium. The sample configuration file contains comments to help you understand the parameters and how to configure them.



CAUTION: *The ISC DHCP server is not provided as part of the VCX system software and should not be installed on any VCX server.*

Configuration File

All DHCP parameters are specified in a file called `dhcpd.conf`, typically located here:

`/etc/dhcpd.conf`



CAUTION: *Verify that the `dhcpd.conf` file is located in the same place on your Linux or UNIX system. Not all systems use the same file locations. To specify a different location for the `dhcpd.conf` file, start the DHCP server using the `-cf` option.*

Sample File

The sample file contains branch office configuration information only. The information in the sample file focuses on what you need to add to your existing `dhcpd.conf` file. Comments within the sample file help you to determine which parameters must be changed when you copy the sample section and modify it to add another branch office.

Sample DHCP Configuration File



In this sample file, comments appear indented and in italics, immediately following the line(s) to which they refer.

```
#####
# DHCP CONFIGURATION
#####

# Information used in this sample configuration file:
#
# Regional Office 2:
#   Subnet 10.10.2.0
#   Subnet Mask: 255.255.255.0
#   Network Router: 10.10.2.254
#   Primary Call Processor Server (eth1): 10.10.2.6
#   Domain Name System (DNS) Servers: 10.10.2.30, 10.10.2.31
#   Network Management Station: 10.10.2.20
#   Network Time Protocol Server: 10.10.2.50
#   Trivial File Transfer Protocol (TFTP) Server: 10.10.2.40
#
# Branch Office 21 (first branch office associated with regional office 2):
#   Subnet 10.10.21.0
#   Subnet Mask: 255.255.255.0
#   Network Router: 10.10.21.254
#   VCX Server: 10.10.21.5
#   PSTN Gateway: 10.10.21.4
#
authoritative;
```

Include the authoritative declaration at the beginning of the file. This declaration tells the DHCP service to treat the information in the file as the only valid configuration information. Requests from clients that fall outside the definitions in the file are rejected.

```
option domain-name-servers 10.10.2.30, 10.10.2.31
```

The previous line defines the IP addresses of two Domain Name Service (DNS) servers. This sample assumes that all devices in the VCX system use the same DNS servers. If you want devices in some of the offices to use different DNS servers, you can modify a similar line in the branch office section of this file.

```
option domain-name "yourdomain.com"
```

The previous line defines the domain name for your network. For example, a 3Com domain is 3com.com.

Sample DHCP Configuration File (continued)

```
use-host-decl-names on;
```

The previous line forces the DHCP service to supply all host names for DHCP clients.

```
ddns-update-style none;
```

The previous line forces the DHCP service to not update any DNS servers.

```
option space vendor-spec-option;
```

```
option vendor-spec-option.snmp-trap-dest code 11 = string;
```

The previous lines define the format for the destination to which SNMP (Simple Network Management Protocol) trap messages are to be sent. Typically, the destination is the IP address of a PC or workstation on which you run your SNMP software. The first line defines the space for the vendor-spec-option. The second line adds a specific, SNMP-related parameter for the trap destination.

```
class "BRANCH_CALLP"{
    match option vendor-class-identifier;
}
```

The previous lines define a class called BRANCH_CALLP (the name is your choice). DHCP clients become members of the class based on the match statement. This class contains the branch office VCX servers.

```
class "GATEWAY" {
    match option vendor-class-identifier;
}
```

The previous three lines define a class called GATEWAY (the name is your choice). This class contains the PSTN gateways that are located in the branch offices.

```
class "PHONES" {
    match substring (option vendor-class-identifier,1,11);
}
```

The previous three lines define a class called PHONES (the name is your choice). This class contains the branch office telephones.

Sample DHCP Configuration File (continued)

```
subclass "BRANCH_CALLP" "3Com-VCX-7200-7.0.1c";
```

The previous line defines the vendor class identifier string sent by the VCX server in the branch office when it sends a DHCP request. The string for BRANCH_CALLP depends on the VCX software release. For example, a VCX server running release 7.0.3c would use 3Com-VCX-7200-7.0.3c as the vendor class identifier string.

```
subclass "GATEWAY" "Mediant-1000";
```

The previous line defines the vendor class identifier string sent by the PSTN gateway. The string is the same regardless of whether the PSTN gateway is a separate unit or is contained within the same box as the VCX server.

```
subclass "PHONES" "3Com-Phone-2101";
```

```
subclass "PHONES" "3Com-Phone-2102";
```

```
subclass "PHONES" "3Com-Phone-3100";
```

```
subclass "PHONES" "3Com-Phone-3101";
```

```
subclass "PHONES" "3Com-Phone-3102";
```

```
subclass "PHONES" "3Com-Phone-3103";
```

The previous set of lines define vendor class identifier strings for 3Com telephones. These strings are used by the match statement in each of the class statements. This file includes a sample line for each possible telephone type. In your dhcpd.conf file, include the lines for the telephone types that are in the branch office.

```
option space phone-184;
```

The previous line creates an option space called phone-184. The name of this option space is your choice. The space is intended to contain vendor-specific options related to DHCP Option 184, as defined in RFC 2132.

```
option phone code 184 = encapsulate phone-184;
```

The previous line encapsulates all of the attributes of option 184 under the name "phone-184." There are three separate attributes associated with option 184 and by encapsulating them, the attributes can be delivered to DHCP clients (telephones) in a single package.

```
option phone-184.first_row code 1 = {ip-address};
```

The previous line defines option code 1 as an IP address. In this case the IP address is for the branch office VCX server. Telephones in a branch office normally obtain call processing services from this server.

Sample DHCP Configuration File (continued)

```
option phone-184.second_row code 2 = {ip-address};
```

The previous line defines option code 2 as an IP address. In this case the IP address is for the Primary Call Processing Server in the regional office that is associated with the branch office in which the telephone is located. Branch office telephones obtain call processing services from this processor if the branch office server is unavailable.

```
option phone-184.third_row code 4 = {ip-address,string};
```

The previous line defines option code 4 as an IP address and a string of characters. In this case, the IP address is for the PSTN gateway that connects the branch office to the Public Switched Telephone Network. The character string is the dial string prefix that is used when both the branch office server and the regional Call Processing Server are unavailable. Under these conditions, telephones must interact directly with the PSTN gateway.

The dial string prefix determines which telephone numbers can be dialed. The asterisk () character is a wildcard that can represent any number. For example, a prefix of 91* allows callers to call any number that begins with the digits 91.*

```
#####  
#BRANCH OFFICE 21 CONFIGURATION  
#####
```

This section contains information that is specific to the configuration of a branch office. Duplicate this section for each branch office in your VCX system and, for each new section, modify the appropriate elements to match the requirements of the branch.

Any configuration parameter that needs to be changed for each branch is marked by the phrase CHANGE FOR EACH BRANCH.

Sample DHCP Configuration File (continued)

```
subnet 10.10.21.0 netmask 255.255.255.0
{
```

The previous two lines begin the definition of the subnetwork parameters for the branch office. First the subnet address is defined, followed by the subnetwork mask.

CHANGE FOR EACH BRANCH: The subnet IP address must be changed to match the branch office subnetwork. Branch offices must use unique subnetworks so that the DHCP server can identify DHCP the branch office from which a request is coming. The netmask may also need to be changed if the branch office uses a different mask. However, this is less likely.

```
# Pool of addresses for BRANCH CALLP
pool{
    allow members of "BRANCH_CALLP";
    option routers 10.10.21.254;
```

The previous line defines the IP address for the network router in the branch office. Typically, router addresses end in either 1 or 254.

CHANGE FOR EACH BRANCH: The router IP address must conform to the network parameters of the branch office and each branch office must use a unique subnetwork address.

```
max-lease-time 2147483648;
min-lease-time 2147483648;
default-lease-time 2147483648;
```

VCX servers in branch offices require DHCP leases that will not expire. Use the parameters shown in the previous three lines to configure all lease-related parameters to the maximum value.

```
option broadcast-address 10.10.21.255;
```

The previous line defines the broadcast address for the branch office network.

CHANGE FOR EACH BRANCH: The broadcast IP address must conform to the network parameters of the branch office and each branch office must use a unique subnetwork address.

Sample DHCP Configuration File (continued)

```
option subnet-mask 255.255.255.0;
```

The previous line defines the subnetwork mask for the branch office network.

CHANGE FOR EACH BRANCH: Most likely, the same subnetwork mask is used in each of the branch offices. Change this setting only if branch offices use different subnetwork masks.

```
option vendor-class-identifier "3Com-VCX-7200-7.0.1c";
```

The previous line defines the vendor class identifier string sent by the VCX server in the branch office when it sends a DHCP request. The string for BRANCH_CALLP changes with each VCX software release. For example, on a server running release 7.0.3c, 3Com-VCX-7200-7.0.3c would be used.

```
option host-name "branch-21";
```

The previous line defines the host name that you want to assign to the VCX branch office server.

NOTE: These host names are not posted to any DNS servers.

CHANGE FOR EACH BRANCH: The host name must be unique for each branch office VCX server.

```
option domain-name "yourcompany.com.";
```

The previous line defines the domain name that you want the branch office server to use.

```
option bootfile-name "/tftpboot/VCXConfiguration21.xml";
```

The previous line defines the pathname of the configuration file that will be transferred from the TFTP server to the VCX server. The file is used to configure the VCX server.

CHANGE FOR EACH BRANCH: Each branch office is configured slightly differently, and each VCX server must have a unique configuration file on the TFTP server.

Sample DHCP Configuration File (continued)

```
option ntp-servers 10.10.2.50, 10.10.2.6;
```

The previous line defines the IP addresses of Network Time Protocol servers that the branch office VCX server can use to obtain accurate time-of-day information. 3Com recommends that you specify at least two NTP server addresses and one of them should be another VCX server in your system. In this sample file 10.10.2.50 is the IP address of an NTP server located in the regional office and 10.10.2.6 is the IP address of the Call Processing Server in the same regional office.

CHANGE FOR EACH BRANCH: Change these IP addresses only if you want a branch office VCX server to use different NTP servers than other branch office VCX servers use.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

```
vendor-option-space vendor-spec-option;
```

The previous line creates a space to contain several vendor-spec-options.

```
option vendor-spec-option.snmp-trap-dest "10.10.2.20";
```

The previous line defines the IP address of the network management station to which SNMP (System Network Management Protocol) trap messages should be sent. This line can contain multiple comma-separated IP addresses if you want to specify more than one network management station.

CHANGE FOR EACH BRANCH: Change this IP address only if you want to manage some branch office VCX servers from one management station and other branch office VCX servers from one or more different management stations.

```
option time-offset -300;
```

The previous line defines the time offset, in minutes, of the branch office time zone from the Prime Meridian. A positive value indicates that the location is East of the Prime Meridian and a negative value indicates that the branch office time zone is West. The value in the sample indicates a times zone that is 5 hours (300 minutes) West.

Sample DHCP Configuration File (continued)

```
option tftp-server-name "10.10.2.10";
```

The previous line defines the IP address of the TFTP server that is located in the regional office with which the branch office is associated. This server supplies the configuration file for the VCX server.

CHANGE FOR EACH BRANCH: Change this IP address only if you want a branch office VCX server to use a different TFTP server.

```
option domain-name-servers 10.10.2.30, 10.10.2.31;
```

The previous line defines the IP address of one or more Domain Name Service (DNS) Servers. In this sample configuration file, the DNS servers are located in the regional office with which the branch office is associated. In this sample file, this same option statement is included in the global section. You might choose to also include it in each branch office section in order to specify different DNS servers for individual branch offices. To use the same DNS servers for all branch offices, eliminate this line from the branch office sections of your dhcpd.conf file.

CHANGE FOR EACH BRANCH: Change this IP address only if you want a branch office VCX server to use different DNS servers.

```
range 10.10.21.5;
```

```
}
```

The previous line defines the range of IP addresses that can be allocated to the branch office server. A range statement can contain both a lower and an upper IP address. In this sample, only the lower IP address is defined because the VCX server uses a fixed address.

CHANGE FOR EACH BRANCH: Change this IP address to match the network parameters of the branch office.

```
#Define a pool of one address for the PSTN GATEWAY.
```

```
pool
{
    allow members of "GATEWAY";
```

The previous three lines begin the definition of a pool to contain one IP address for the PSTN gateway.

```
max-lease-time 2147483648;
```

```
min-lease-time 2147483648;
```

```
default-lease-time 2147483648;
```

PSTN Gateways in branch offices require DHCP leases that will not expire. Use the parameters shown in the previous three lines to configure all lease-related parameters to the maximum value.

Sample DHCP Configuration File (continued)

```
option routers 10.10.21.254;
```

The previous line defines the IP address of the network router for the branch office. Typically, router addresses end in either 1 or 254.

CHANGE FOR EACH BRANCH: Change this IP address to match the network parameters of the branch office.

```
option broadcast-address 10.10.21.255;
```

The previous line defines the broadcast IP address for the branch office network.

CHANGE FOR EACH BRANCH: Change this IP address to match the network parameters of the branch office.

```
option subnet-mask 255.255.255.0;
```

The previous line defines the subnetwork mask for the branch office network.

CHANGE FOR EACH BRANCH: Most likely, the same subnetwork mask is used in each of the branch offices. Change this setting only if branch offices use different subnetwork masks.

```
option vendor-class-identifier "Mediant-1000";
```

The previous line defines the vendor class identifier string that the PSTN gateway sends when it transmits a DHCP request.

```
option host-name "gateway_branch21";
```

The previous line defines the host name to be assigned to the PSTN gateway.

NOTE: These host names are not posted to any DNS servers.

CHANGE FOR EACH BRANCH: The host name must be unique for each branch office PSTN gateway.

```
option bootfile-name "/tftpboot/gatway21.ini";
```

The previous line defines the path to the initialization file for the PSTN gateway. The path on your TFTP server may be different and the file name is your choice.

CHANGE FOR EACH BRANCH: Each branch office is configured slightly differently, and each PSTN gateway must have a unique configuration file on the TFTP server.

Sample DHCP Configuration File (continued)

```
option ntp-servers 10.10.2.50, 10.10.2.6;
```

The previous line defines the IP addresses of Network Time Protocol servers that the branch office VCX server can use to obtain accurate time-of-day information. 3Com recommends that you specify at least two NTP server addresses and one of them should be another VCX server in your system. In this sample file 10.10.2.50 is the IP address of an NTP server located in the regional office and 10.10.2.6 is the IP address of the Call Processing Server in the same regional office.

CHANGE FOR EACH BRANCH: Change these IP addresses only if you want a branch office PSTN gateway to use different NTP servers than other branch office VCX servers use.



CAUTION: If VCX systems are not synchronized via NTP, timing-related problems can occur.

```
vendor-option-space vendor-spec-option;
option tftp-server-name "10.10.2.40";
```

The previous two lines define the IP address of the Trivial File Transfer Protocol (TFTP) server. Configuration files for the VCX server and the PSTN Gateway are located on the TFTP server.

```
option vendor-spec-option.snmp-trap-dest "10.10.2.20";
```

The previous line defines the IP address of the network management stations to which SNMP (System Network Management Protocol) trap messages should be sent. This line can contain multiple comma-separated IP addresses if you want to specify more than one network management station.

CHANGE FOR EACH BRANCH: Change this IP address only if you want to manage some branch office PSTN gateways from one management station and other PSTN gateways from one or more different management stations.

```
range 10.10.21.4;
}
```

The previous line defines the range of IP addresses that can be allocated to the branch office PSTN Gateway. A range statement can contain both a lower and an upper IP address. If you want, you can define only the lower IP address, as in the sample.

CHANGE FOR EACH BRANCH: Change this IP address to match the network parameters of the branch office.

Sample DHCP Configuration File (continued)

```
pool
{
    allow members of "PHONES";

option phone-184.first_row 10.10.21.5;
```

The previous line provides the IP address associated with option code 1. This should be the IP address of the branch office VCX server.

CHANGE FOR EACH BRANCH: Change this IP address to match the network parameters of the branch office.

```
option phone-184.second_row 10.10.2.6;
```

The previous line provides the IP address associated with option code 2. This should be the IP address of the Primary Call Processing Server in the regional office with which the branch office is associated.

CHANGE FOR EACH BRANCH: Change this IP address to match the network parameters of the branch office.

```
option phone-184.third_row 10.10.21.4 91*;
```

The previous line provides the IP address (10.10.21.4) and failover dial string (91) for the PSTN gateway.*

CHANGE FOR EACH BRANCH: Change this IP address to match the network parameters of the branch office. Optionally, change the failover dial string if it has been configured differently in different branch offices.

```
range 10.10.21.100 10.10.21.200;
```

The previous line defines the IP address range for telephones in the branch office.

CHANGE FOR EACH BRANCH: Change both IP addresses to match the network parameters of the branch office.

```
range 10.10.21.100 10.10.21.200;
}
}
```

Windows 2003
Server

This section describes how to configure DHCP services on a Windows 2003 Server.



Some of the DHCP options in the examples in this section are configured as system-wide options while others are configured at the scope or reservation level. If necessary, modify the examples to conform to the norms used in your network design. For example, if you use more than one Network Time Protocol server per regional office, you may want to configure DHCP option 42 (NTP Server IP Address) at the scope level (for each branch office) rather than at the server-wide level (for all branch offices).

Preparation Steps

To automate the branch office server installation you must first perform these preparation steps:

- On a DHCP server that will service requests from the branch offices, create, *but do not configure* the options listed in [Table 16](#) as server-wide options. These options are then available for configuration within all scopes and will be configured within each individual scope. See [“Options 60, 120 and 184”](#) later in this appendix.

Table 16 Server-Wide DHCP Options (not preconfigured)

	Description
60	Vendor Class Identifier
120	SIP Server Options
184	NCP Download Options

- On the DHCP server, configure the options listed in [Table 17](#) as server-wide options. These options are then preconfigured for all branch office scopes. See [“Options 6 and 42”](#) later in this appendix.

Table 17 Server-Wide DHCP Options (preconfigured)

	Description
6	Domain Name Server IP Address
42	Network Time Protocol Server IP Address

- On the DHCP server, create one DHCP scope per branch office. For each scope, configure the options listed in [Table 18](#). See [“Configuring DHCP Options for Each Scope”](#) later in this appendix.

Table 18 Scope Options

DHCP Option	Description
3	Router Address
120	SIP Server Options
184	Network Call Processor Download Options

- Within each scope, reserve one IP address for the VCX Server, one IP address for the Media Gateway, and one address for each 3Com telephone. See [“Reserving IP Addresses”](#) later in this appendix.
- For each of the reserved IP addresses within each scope, configure the DHCP options listed in [Table 19](#). See [“Configuring DHCP Options for a Reservation”](#) later in this appendix.

Table 19 DHCP Options and Descriptions

	Description
12	Host Name Option
60	Vendor Class Identifier
66	TFTP Server IP Address
67	Boot File Name



The instructions in this appendix document how to configure DHCP on a Windows 2003 server. If you use a different DHCP server, adapt the instructions to the server that you are using.

- Create a VCX configuration file for each branch office VCX server. See [“Configuration Files”](#) later in this appendix.
- Create a VCX configuration file for each PSTN Gateway. See [“Configuration Files”](#) later in this appendix.
- Configure a TFTP server in the regional office. On the TFTP server, place the appropriate configuration files for the VCX branch office server and the branch office Media Gateway. There are no instructions in this appendix for configuring the TFTP server. None of the VCX servers run TFTP server software.
- Optionally, install a 3Com Enterprise Management Suite (EMS) network management station and configure golden configuration files for the branch offices. The *Enterprise Management Suite Getting Started Guide* provides instructions for installing EMS.

- Verify that each branch office has an operational and properly configured network gateway (router) and that there is network connectivity between the branch office and the regional office in which the DHCP server resides.

Adding a DHCP Server Role

If your Windows 2003 server is not yet configured for DHCP, you must add the DHCP server role:

- 1 Click *Start > Manage Your Server*.
- 2 Click *Add or remove a role*.
- 3 The *Configure Your Server Wizard* window opens.
- 4 Click *Next*.
- 5 From the list of roles, select *DHCP server*.
- 6 Click *Next*.
- 7 Click *Next* again.
- 8 When the *New Scope Wizard* window appears, click *Cancel*.



The server configuration wizard assumes that you will immediately create the first DHCP scope. In this procedure, scopes will be created later.

- 9 When the *Cannot Complete* message appears, click *Finish*.

Creating Server-Wide DHCP Options

You can create DHCP options at the server-wide level. You can also choose to configure them or not configure them at that level.

Options 60, 120 and 184

Three DHCP options (60, 120 and 184) are not pre-defined on a Windows 2003 server. You must create them.

When you create, but do not configure these options at the server-wide level, you make them available in the list of DHCP options. Later, you can configure these options within each of the scopes that you create.



CAUTION: *Do not configure options 120 and 184 when you create them. If you configure these options at the server-wide level, the configuration parameters will be applied to all scopes. The configuration of these options must be done for each individual scope.*

To create option 60 and add it to the list of DHCP options:

- 1 Right click the name of the Windows 2003 server, and in the menu that appears, click *Set Predefined Options*.
- 2 In the *Predefined Options and Values* window that appears, click *Add*.
- 3 In the Option Type window that appears, enter this information:

Table 20 Option 60 Values

Field	Description
Name	Enter a name of your choice. Example: 3Com Equipment
Data type	In the drop-down list, click String .
Array	Enable the array check box. NOTE: Enabling the array check box allows you to enter multiple values.
Code	60
Description	Enter a description of your choice: Example: 3Com Phones, Gateways, and Call Processors

- 4 Click *OK*.

To create 120 and add it to the list of DHCP options:

- 1 Right click the name of the Windows 2003 server, and in the menu that appears, click *Set Predefined Options*.
- 2 In the *Predefined Options and Values* window that appears, click *Add*.
- 3 In the Option Type window that appears, enter this information:

Table 21 Option 120 Configuration

	Description
Name	Enter a name of your choice. Example: 3Com SIP Call Processors
Data type	In the drop-down list, click IP Address .
Array	Enable the array check box. NOTE: Enabling the array check box allows you to enter multiple values.
Code	120
Description	Enter a description of your choice: Example: Primary and Secondary SIP Call Processor IP Addresses

4 Click *OK*.

To create option 184 and add it to the list of DHCP options:

- 1 Right click the name of the Windows 2003 server, and in the menu that appears, click *Set Predefined Options*.
- 2 In the *Predefined Options and Values* window that appears, click *Add*.
- 3 In the Option Type window that appears, enter this information:

Table 22 Option 184 Values

	Description
Name	Enter a name of your choice. Example: Call Processor Downloader Options
Data type	In the drop-down list, click Byte .
Array	Enable the array check box. NOTE: Enabling the array check box allows you to enter multiple values.
Code	184
Description	Enter a description of your choice: Example: Call Processor download information

- 4 Click *OK* to accept the values that you have entered.

Options 6 and 42

Options 6 and 42 are predefined on a Windows 2003 server. Configure these options at the system-wide level to apply the configuration parameters to all scopes that you create.

Option 6 — Domain Name Server IP Address

To configure the IP address of one or more domain name servers:

- 1 Right click the name of the Windows 2003 server, and in the menu that appears, click *Set Predefined Options*.
- 2 In the *Predefined Options and Values* window that appears, select *006 DNS Servers* from the *Option name* drop down list.
- 3 In the lower area of the window, click *Edit Array*.
- 4 In the *IP Address Array Editor* window that appears:

- Enter the name of a DNS server in the *Server name* text box and click *Resolve*. The wizard attempts to contact a DNS server and determine the IP address of the DNS server name that you entered.
- OR
- Enter the IP address of a DNS server in the *IP address* text box and click *Add*.
- 5 To finish and exit, click *OK*.
 - 6 To add additional DNS servers, click *Apply* and then repeat the preceding steps.

Option 42 — Network Time Protocol Server IP Address

All VCX servers access Network Time Protocol servers to maintain accurate time of day.



CAUTION: *If VCX systems are not synchronized via NTP, timing-related problems can occur.*

To configure the IP address of an NTP server:

- 1 Right click the name of the Windows 2003 server, and in the menu that appears, click *Set Predefined Options*.
- 2 In the *Predefined Options and Values* window that appears, select *042 NTP Servers* from the *Option name* drop down list.
- 3 In the lower area of the window, click *Edit Array*.
- 4 In the *Data entry* area of the window:
 - Enter the name of an NTP server in the *Server name* text box and then click *Resolve*. The wizard attempts to contact a DNS server and obtain the IP address that is associated with the NTP server name.

OR

 - Enter the IP address of the NTP server in the *IP address* text box and click *Add*.
- 5 To configure a single NTP server, click *OK* and exit the screen.
- 6 To add more than one NTP server, click *Apply* and then repeat the previous steps.

Creating a Branch Office Scope

You must create a separate scope for each branch office in your VCX system. Within each scope, you can use DHCP options to configure the branch office VCX server and PSTN Gateways that are located in the branch office.

To create a scope on a Windows 2003 server:

- 1 Create and name the scope.
 - a Click *Start > Manage Your Server*.
 - b Click *Manage this DHCP server*.
 - c In the *DHCP* window that opens, right click the name of the Windows 2003 server and in the menu that appears, click *New Scope*.

The *New Scope Wizard* window appears.

- d Click *Next*.
 - e Enter the name of the scope in the *Name* text field.



Typically, the scope name should indicate the branch office that will be associated with the scope.

- f Optionally, enter a description of the scope in the *Description* text field.
 - g Click *Next*.

- 2 Define the range of IP addresses that the DHCP server can provide for this scope.

- a Enter the first IP address of the range in the *Start IP Address* text field.
 - b Enter the last IP address of the range in the *End IP Address* text field.
 - c Enter the length of the subnetwork mask.



The length of the subnetwork mask is specified in bits, and the mask is directly related to the length. A typical example is a 24-bit mask. When you enter a length of 24 bits, the wizard automatically fills in this mask: 255.255.255.0.

- d The *Add Exclusions* window appears. If you want to exclude any IP addresses from the range that you have specified, enter them here.
 - To exclude a range of addresses, enter the Start and End IP addresses and click *Add*.
 - To exclude a single IP address, enter it as the Start IP address and click *Add*.

When you have excluded all of the IP addresses that you want, click *Next*.

- 3 Accept the default lease duration (8 hours) by clicking *Next*.



3Com recommends that all leases for branch office devices be unlimited. To configure an unlimited lease duration you must first configure a finite duration and then edit the scope properties to change the duration to unlimited. See ["Configuring Unlimited Leases"](#) later in this section for a description of how to configure an unlimited lease duration.

- 4 The wizard asks you whether you want to configure DHCP options. Enable the *No, I will configure these options later* radio button and click *Next*.
- 5 Click *Finish*.
- 6 Repeat steps 1 through 5 for as many branch offices as you want to configure.

Configuring Unlimited Leases

After a DHCP scope has been created, follow these instructions to modify the lease duration to make leases unlimited.

- 1 Click *Start > Manage Your Server*.
- 2 The *Manage Your Server* window appears. In the *DHCP Server* area of the window, click *Manage this DHCP server*.
- 3 In the DHCP window that appears, expand the view in the left pane by clicking the plus sign (+) to the left of the name of your Windows 2003 server.
- 4 Select the scope that you want, right click it, and in the menu that appears, click *Properties*.
- 5 In the *Scope Properties* window that appears, on the *General* tab, click the *Unlimited* radio button in the lower portion of the window and then click *OK*.

Configuring DHCP Options for Each Scope

For each scope that you create, follow the procedures in this section to configure DHCP options 3, 120, and 184 at the individual scope level. If you want to configure these options at a different level because of your network design, you must modify the examples.

Option 3 — Router Address

To configure the IP Address of the router (network gateway) in the branch office:

- 1 Expand the view of the scope you want to configure by clicking the plus sign (+) to the left of the scope name.
- 2 Select *Scope Options*, right click, and in the menu that appears, click *Configure Options*.
- 3 In the *Available Options* list, enable the check box beside the *003 Router* item.
- 4 In the *Data entry* area of the window, optionally enter a name for the router in the *Server name* text box.
- 5 Enter the router's IP address in the *IP address* text box.
- 6 Click *Add*.

Option 120 — SIP Server Options

Use the SIP server options to specify the IP addresses of the SIP servers (the Primary Call Processing Server and the Secondary Call Processing Server) in the VCX system.

To configure Option 120 for 3Com equipment:

- 1 In the *Predefined Options and Values* window, verify that *120* is selected in the *Option name* field.
- 2 In the lower area of the window, click *Edit Array*.
- 3 In the *IP Address Array Editor* window that appears, enter the IP addresses of the Primary and Secondary Call Processing Servers, one at a time, in the *IP address* text box, and click *Add* to add each item.
- 4 Click *OK* to return to the *Predefined Options and Values* window.
- 5 Click *OK*.

Option 184 — Network Call Processor Download Options

3Com telephones can receive their IP configuration from a DHCP server. However, 3Com telephones need configuration information that is not part of a standard DHCP response. You can use DHCP option 184 to specify this extended information:

- **NCP IP Address** — Each telephone must receive a download of operating settings from the VCX Downloader task, which typically

resides on the same server as the Primary VCX Network Call Processor (NCP).

- **Alternate Server IP Address** — Specifies a second location from which a telephone can receive its download. Typically, this is the IP address of the Secondary VCX NCP in a dual-server configuration.
- **Voice VLAN Configuration** — If you configure any of your 3Com telephones or your VCX system on Virtual LANs, you can configure your DHCP server to specify VLAN ID numbers for each scope. You can also enable and disable VLAN operation for each DHCP scope.
- **Fail-Over Call Route Point** — You can define a single fail-over route point (IP address) and an associated dial string for SIP devices such as telephones to use.

If a failure occurs on the Primary VCX Call Processing Server, the telephone switches to the Secondary VCX Call Processing Server. If both are unavailable, the telephone switches to peer-to-peer SIP operation and attempts to connect to the IP address of the fail-over route point. The dial string controls the types of calls that can be made while the telephone is in peer-to-peer mode.

To configure option 184:

- 1 In the *Predefined Options and Values* window, verify that *184* is selected in the *Option name* field.
- 2 In the lower area of the window, click *Edit Array*.
- 3 In the *Numeric Value Array Editor* window that appears, highlight the 0 (zero), and click *Remove*.
- 4 To create the new value, enter each element of the new value:
 - a Click in the *New value* text box.
 - b Type the individual element value.
 - c Click *Add*.

Configuring the IP Address of the Primary VCX Call Processor

Suboption 1 of option 184 defines the IP address of the Primary VCX Call Processing Server. For each element in [Table 23](#), repeat steps 4 a, b, and c, listed earlier in this topic. As you add each element, it appears in the *Current values* list, above previously added values.

Add these elements in this order:

Table 23 Configuring the IP Address of the Primary Server

Description	
1	Enter 1 as the first suboption code for option 184.
4	The length of the argument that applies to this suboption. For option 184, suboption 1, the argument is an IP address, which is composed of four numerical fields (octets).
NOTE: The next four fields use 10.234.1.254 as an example IP address of the VCX Primary Server. Enter the IP address of your primary server.	
10	The first octet in the IP address.
234	The second octet in the IP address.
1	The third octet in the IP address.
254	The fourth octet in the IP address.

Configuring the IP Address of the Alternate VCX Call Processor

Suboption 2 of option 184 defines the IP address of the Alternate VCX Call Processing Server. For each element in [Table 24](#), repeat steps 4 a, b, and c, listed earlier in this topic. As you add each element, it appears in the *Current values* list, above previously added values.

Add these elements in this order:

Table 24 Configuring the IP Address of the Alternate Server

Description	
2	Enter 2 as the second suboption code for option 184.
4	The length of the argument that applies to this suboption. For option 184, suboption 2, the argument is an IP address, which is composed of four numerical fields (octets).
NOTE: The next four fields use 10.234.1.253 as an example IP address of the VCX alternate server. Enter the IP address of your alternate.	
10	The first octet in the IP address
234	The second octet in the IP address
1	The third octet in the IP address
253	The fourth octet in the IP address

Voice VLAN Configuration

Suboption 3 of option 184 defines the Voice VLAN configuration for the VCX system. For each element in [Table 25](#), repeat steps 4 a, b, and c,

listed earlier in this topic. As you add each element, it appears in the *Current values* list, above previously added values.

Add these elements in this order:

Table 25 Configuring the VLAN ID

	Description
3	Enter 3 as the third suboption code for option 184.
4	The length of the argument that applies to this suboption. For option 184, suboption 3, there are two arguments: VLAN ID: 2 bytes (possible values: 0 through 4095) VLAN Enable: 2 bytes (possible values: 1 = enabled and 0 = disabled)
NOTE: The next two fields use example data: 25 as the VLAN ID and 1 to enable it. Enter the appropriate information for your VLAN.	
25	VLAN ID
1	VLAN is enabled

Fail-Over Call Route Point Configuration

Suboption 4 for option 184 defines the fail-over route point and the associated dial string to be used by VCX devices in the event that neither the VCX Primary Server nor the VCX Alternate Server are available.

For each element in [Table 26](#), repeat steps 4 a, b, and c, listed at the beginning of this topic. As you add each element, it appears in the *Current values* list, above previously added values.

Add these elements in this order:

Table 26 Configuring the Fail-Over Call Route Point

What You Type	Description
4	Enter 4 as the fourth suboption code for option 184.
NOTE: The next eight fields show example data. Enter the information appropriate to your configuration.	

Table 26 Configuring the Fail-Over Call Route Point (continued)

What You Type	Description
10	<p>The length of the argument that applies to suboption 4 is determined by two elements:</p> <p>IP Address: The IP address of the device that is to be contacted if the VCX server cannot be reached. This requires 4 bytes, one for each octet in the IP address.</p> <p>Dial String: The number pattern that determines which calls can be connected to the fail-over device. Limit: 254 characters</p> <p>The format in which you enter the digits of the dial string is:</p> <ul style="list-style-type: none"> ■ 0 through 9: – Enter 00 through 09 ■ Wildcard: – Enter 0xAA which is the hexadecimal value for the asterisk (*) character. <p>Note: The asterisk character must be the last character in the dial string.</p> <p>Note: You can configure only one dial string in suboption 4.</p> <p>Example: The IP address is 192.168.15.254 and the fail-over dial string is 91*. This allows calls to be made to any number that begins with the digits 91.</p> <p>In this example, you enter 10 as the length of the argument (4 bytes for the IP address and 2 bytes for each of the three dial string digits).</p>
192	The first octet in the IP address
168	The second octet in the IP address
15	The third octet in the IP address
254	The fourth octet in the IP address
09	The first digit in the fail-over dial string (9)
01	The second digit in the fail-over dial string (1)
0xAA	The wildcard (asterisk) character, entered in hexadecimal format.

Completing the Configuration

- 1 After you have entered all elements in the new value, click **OK**. You return to the *Predefined Options and Values* dialog box. The values that you entered appear in the *Value* area of the dialog box under *Byte*.



The values appear in hexadecimal format although you entered them in decimal format.

- 2 To accept the values, click **OK**. You return to the *DHCP* dialog box.

Reserving IP Addresses

Within each scope, you must reserve one IP address for the VCX branch office server and another IP address for each PSTN Gateway. This section describes how to reserve the IP addresses and how to configure DHCP options 12, 60, 66, and 67 for each reserved address.

To reserve an IP address:

- 1 Expand the view of the scope in which you want to create the reservation by clicking the plus sign (+) to the left of the scope name.
- 2 Right-click *Reservations* and in the menu that appears, click *New Reservation*.
- 3 In the New Reservation window that appears, enter this information:

Table 27 New Reservation Fields

Field	Description
Reservation name	<p>A name of your choosing.</p> <p>Example: VCX Server</p> <p>Example: Media Gateway</p> <p>Example: 3Com 3102 Telephone</p>
IP address	<p>Enter an IP address within the range of addresses that you previously specified for this scope.</p>
MAC address	<p>Enter the hexadecimal equivalent of the Vendor Class Identifier. The Windows 2003 server parses this field as if it were a MAC address, so hexadecimal notation is required. In addition, the Windows 2003 server drops the first byte of the Vendor Class Identifier string (sent by the DHCP client) when parsing it. Therefore, enter the hexadecimal equivalent of the string after you remove the first character:</p> <p>Example for a VCX Server</p> <p>String: 3Com-VCX-7200 becomes Com-VCX-7200</p> <p>Hexadecimal: 436f6d2d5643582d37323030</p> <p>Example for a Media Gateway</p> <p>String: TO BE SUPPLIED</p> <p>Hexadecimal:</p> <p>Examples for 3Com Telephones</p> <p>String: 3Com-Phone-2101 becomes Com-Phone-2101</p> <p>Hexadecimal: 436f6d2d50686f6e652d32313031</p>

Table 27 New Reservation Fields (continued)

Field	Description
MAC address (continued)	String: 3Com-Phone-2102 becomes Com-Phone-2102 Hexadecimal: 436f6d2d50686f6e652d32313032 String: 3Com-Phone-3100 becomes Com-Phone-3100 Hexadecimal: 436f6d2d50686f6e652d33313030 String: 3Com-Phone-3101 becomes Com-Phone-3101 Hexadecimal: 436f6d2d50686f6e652d33313031 String: 3Com-Phone-3102 becomes Com-Phone-3102 Hexadecimal: 436f6d2d50686f6e652d33313032 String: 3Com-Phone-3103 becomes Com-Phone-3103 Hexadecimal: 436f6d2d50686f6e652d33313033
Description	Enter a description of your choosing. Example: Reserved address for VCX Server in Branch 01. Example: Reserved IP address for Media Gateway in Branch 01. Example: Reserved IP address for 3Com 3102 Telephone.
Supported types	Enable the <i>Both</i> radio button.



The Windows 2003 server expects a valid MAC address in the MAC address field. The Vendor Class Identifier strings (converted to hexadecimal format) are longer than a normal MAC address so you may see this warning message: “The Unique Identifier you have entered may not be correct. Do you want to use this identifier anyway?” It is safe to ignore this message.

Configuring DHCP Options for a Reservation

For each IP address reservation that you have created, follow the procedures in this section to configure DHCP options 12, 60, 66, and 67.

Option 12 — Host Name

The host name option allows the DHCP server to supply a name for the branch office VCX server or the Media Gateway that has sent the DCHP request. 3Com suggests that you choose each host name to indicate the office in which the host resides.

To configure the host name option:

- 1 Expand the view of the scope you want by clicking the plus sign (+) to the left of the scope name.
- 2 Expand the view of the *Reservations* you want by clicking the plus sign (+) to the left of the word *Reservations*.
- 3 Select the reservation that you want, right click the reservation name, and in the menu that appears, click *Configure Options*.
- 4 In the *Reservations* window that appears, in the *Available Options* list, enable the check box beside the *012 Host Name* item.
- 5 In the *Data entry* area of the window, enter the host name in the *String value* text box.



Host names must contain 11 or fewer characters.

- 6 Click OK.

Option 60 — Vendor Class Identifier

The vendor class identifier option provides a way for vendors to identify their equipment when that equipment is making a DHCP request. Based on the information that a given device provides in the vendor class identifier field, the DHCP server responds in different ways. [Table 20](#), later in this section, for VCX server and Media Gateway vendor class identifiers.

To configure vendor class identifier information for 3Com equipment:

- 1 Expand the view of the scope you want by clicking the plus sign (+) to the left of the scope name.
- 2 Expand the view of the *Reservations* you want by clicking the plus sign (+) to the left of the word *Reservations*.
- 3 Select the reservation that you want, right click the reservation name, and in the menu that appears, click *Configure Options*.
- 4 In the *Reservations* window that appears, in the *Available Options* list, enable the check box beside *060 3Com Equipment*.
- 5 In the *Data entry* area of the window, enter the appropriate Vendor Class Identifier from [Table 28](#) in the *New Value* text box, and click *Add*.

Table 28 Vendor Class Identifier Data

Equipment	Vendor Class Identifier
VCX Branch Office Server	<p>Vendor Class Identifier: 3Com-VCX-7200-6.0.1c</p> <p>CAUTION: The Windows 2003 server requires that you enter the string in hexadecimal format. Enter this string: 436f6d2d5643582d373230302d362e302e3163</p> <p>NOTES:</p> <ol style="list-style-type: none">1 The Windows 2003 server drops the first byte of the Vendor Class Identifier String when it parses the input from the VCX server (the DHCP client). The hexadecimal example above corresponds to "Com-VCX-7200-6.0.1c" (the initial 3 is missing).2 You may see a warning message about the format of this entry. You can safely ignore the warning.3 When you upgrade the VCX software on a VCX branch office server, you must modify the Vendor Class Identifier information on the DHCP server. To determine what the new identifier string is, use the vcx-showversion command on the branch office VCX server. Translate the string to hexadecimal notation and remove the first hexadecimal character. <p>Example: After you upgrade to VCX release 6.0.3c, the output from the vcx-showversion command is 3Com-VCX-7200-6.0.3c. You must update the Vendor Class Identifier string to: 436f6d2d5643582d373230302d362e302e3363</p>
Media Gateway	<p>Enter the Vendor Class Identifier of the Media Gateway.</p> <p>PSTN Gateway Vendor Class Identifier:</p> <p>Mediant-1000</p>

Table 28 Vendor Class Identifier Data

Equipment	Vendor Class Identifier
3Com Telephones	String: 3Com-Phone-2101 becomes Com-Phone-2101
	Hexadecimal: 436f6d2d50686f6e652d32313031
	String: 3Com-Phone-2102 becomes Com-Phone-2102
	Hexadecimal: 436f6d2d50686f6e652d32313032
	String: 3Com-Phone-3100 becomes Com-Phone-3100
	Hexadecimal: 436f6d2d50686f6e652d33313030
	String: 3Com-Phone-3101 becomes Com-Phone-3101
	Hexadecimal: 436f6d2d50686f6e652d33313031
	String: 3Com-Phone-3102 becomes Com-Phone-3102
	Hexadecimal: 436f6d2d50686f6e652d33313032
	String: 3Com-Phone-3103 becomes Com-Phone-3103
	Hexadecimal: 436f6d2d50686f6e652d33313033

6 Click OK.

Option 66 — TFTP Server IP Address

A TFTP (Trivial File Transfer Protocol) server provides a way to transfer configuration files to branch office VCX servers and Media Gateways.

To configure the IP address of a TFTP server:

- 1 Expand the view of the scope you want by clicking the plus sign (+) to the left of the scope name.
- 2 Expand the view of the *Reservations* you want by clicking the plus sign (+) to the left of the word *Reservations*.
- 3 Select the reservation that you want, right click the reservation name, and in the menu that appears, click *Configure Options*.
- 4 In the *Reservations* window that appears, in the *Available Options* list, enable the check box beside *066 Boot Server Host Name*.
- 5 In the *Data entry* area of the window, enter the host name of the TFTP server in the *String value* text box.
- 6 Click OK.

Option 67 — Boot File Name

The boot file name option allows you to specify the name of a file that will be used to configure a branch office server or a Media Gateway.

To configure option 60:

- 1 Expand the view of the scope you want by clicking the plus sign (+) to the left of the scope name.
- 2 Expand the view of the reservation you want by clicking the plus sign (+) to the left of the word *Reservations*.
- 3 Select the reservation that you want, right click the reservation name, and in the menu that appears, click *Configure Options*.
- 4 In the *Reservations* window that appears, in the *Available Options* list, enable the check box beside *067 Bootfile Name*.
- 5 In the *Data entry* area of the window, enter the name of the configuration file for the VCX server or the Media Gateway in the *String value* text box.
- 6 Click *OK*.

Activating Scopes After you have completed the configuration of each scope, you must activate it.

To activate a scope on a Windows 2003 DHCP server:

- 1 Click the scope name to select it.
- 2 Right click the scope name, and in the menu that appears, click *Activate*.

Upgrading a Branch Office VCX Server

When you upgrade a branch office VCX server, the server changes its vendor class identifier string to include the new software version. This change requires corresponding adjustments to the DHCP server and the TFTP server in the regional office.

Before you upgrade any branch office VCX servers, you must modify the `dhcpd.conf` file on the DHCP server so that the server can properly recognize the new vendor class identifier string

Modifying the `dhcpd.conf` File

Edit the `dhcpd.conf` file and, in the section of the file that applies to the upgraded branch office, replace each occurrence of the vendor class identifier string with the new string. The string contains the software version that will be running on the branch office VCX server after the

upgrade. For example, after an upgrade from VCX software version 7.0.1c to VCX software version 7.0.3c, the string changes.

- **Original String:** 3Com-VCX-7200-7.0.1c
- **New String:** 3Com-VCX-7200-7.0.3c

Updating the Configuration Files

For some software upgrades of branch office servers, it is necessary to modify configuration files on the TFTP server.

Determining Whether an Update is Needed

To determine whether you need to update the configuration files on the TFTP server, run the `vcx-config-services` script on one of the branch office servers and capture the dialog in a log file. Review the log file for the indicators listed in [Table 29](#). The information in the Action Required column tells you whether you need to modify the configuration files on the TFTP server and if so, what modifications are needed.

Table 29 Update Indicators

Action Required

Automated Branch Office Startup

After you have completed the preparation steps, you can install the branch office VCX server and the Media Gateway.



The network gateway must be installed and operating in the branch office prior to beginning to install the VCX server and the Media Gateway.

Here is an overview of the steps required:

- 1 The installation technician installs the VCX server and the Media Gateway in the branch office location, and connects the two devices to the branch office network.
- 2 The installation technician contacts a system administrator in the appropriate regional office and requests that the administrator stop the Tomcat service that is running on the Primary Authentication and Directory Server the Secondary Authentication and Directory Server. Typically these two servers are located in different regional offices.



While the Tomcat process is shut down, access to the provisioning interfaces at the regional offices is disabled.

- 3 After receiving confirmation that the Tomcat process has been stopped, the installation technician applies power to both the VCX server and the Media Gateway.
- 4 The VCX server and the Media Gateway each transmit a DHCP request, and the branch office network gateway passes these requests on to the corporate network where they are received by the DHCP server in a regional office.
- 5 The DHCP requests include information which identifies the requesting equipment and the DHCP server supplies to the VCX server and the Media Gateway, information about a TFTP server and the file name of a configuration file appropriate to each one.
- 6 Software on the VCX server and on the Media Gateway contacts the TFTP server, downloads the appropriate configuration file and then applies the information in the file for configuration purposes.
- 7 After an appropriate amount of time, typically a few minutes, the system administrator in the regional office verifies that the VCX server and Media Gateway in the branch office are functional and properly configured.
- 8 The system administrator then restarts the Tomcat process on the Primary Authentication and Directory Server and on the Secondary Authentication and Directory Server.

C

REPLACING A FAILED DISK ON A VCX SERVER

This appendix includes procedures for replacing a failed disk on each type of VCX server. If a disk drive failure occurs on a VCX server, use the *appropriate* procedure in this appendix to replace the failed disk and bring the VCX server back into service.

RAID Disk Failure

Some VCX servers use RAID (Redundant Array of Independent Disks) technology. This section describes how to replace a failed RAID disk.

Disk Failure Notification

A RAID disk failure generates an SNMP (System Network Management Protocol) trap message. Network management software uses such a trap message to change the visible status of the VCX server and alert you of a problem.

Identifying the Failed Disk

To identify a failed disk on a VCX server, log in on the server and enter this command:

```
vcx-raid-status
```

You can obtain more or less information by using one of these commands:

```
vcx-raid-status --verbose
```

```
vcx-raid-status --short
```

Disk Drive Location

On an IBM x306 server, Disk drive 0 is located in the left slot as you face the front of the server. Disk drive 1 is located in the right slot.

On an IBM x345 or x346 server, Disk drive 0 is located in the upper slot as you face the front of the server. Disk drive 1 is located in the lower slot.

On a 3Com V6000 server, Disk drive 0 is located in the left slot as you face the back of the server. Disk drive 1 is located in the right slot.

Replacing a RAID Disk To replace a failed RAID disk:

- 1 Shut down the server on which the disk failure has occurred.
- 2 Remove and discard the failed disk drive.
- 3 If the failed disk was drive 0, you must move the disk that is in the drive 1 slot to the drive 0 slot. Otherwise, skip this step.



CAUTION: The working disk drive must be located in the drive 0 slot prior to starting the server. If you leave the working disk in the drive 1 slot and insert the replacement disk in the drive 0 slot, the server cannot be properly started.

- 4 Insert a replacement disk into the drive 1 slot.



The replacement disk can be larger than the failed disk. Any additional storage space on the replacement disk will not be used, however.

- 5 Restart the server.
- 6 After the system is running, log in as root and enter this command:

vcx-raid-recover

To view the status of the recovery process, you can enter one of the **vcx-raid-status** commands that are listed in [“Identifying the Failed Disk”](#) earlier in this appendix.



CAUTION: Do not shut down or restart the server until the RAID recovery process has been completed. Wait until the **vcx-raid-status** command returns the message All RAID disks are operational.



During the RAID recovery process, the server is fully operational and can provide VCX services.

Non-RAID Disk Failure

If a disk fails on a VCX server that does not use RAID technology, refer to these procedures:

- [Replacing a Disk \(Single Site\)](#)
- [Replacing a Disk \(Regional Office\)](#)
- [Replacing a Disk \(Branch Office\)](#)

Assumption: The replacement disk arrives and may contain an older version of the software that is installed on the running server.



The VCX system continues to deliver service to VCX system users.

Terminology: Throughout this appendix, the server on which the disk failure has occurred is referred to as the "down server" regardless of what state it is in. The partner server is referred to as the "running server," again without reference to its state.

Replacing a Disk (Single Site)

Use the procedures in this section to replace a disk at a single site that has either two servers or four servers.



A single VCX site is defined as a site that is not part of a multi-site configuration.

This section includes these topics:

- [Overview](#)
- [Instructions \(Single Site, Two Servers\)](#)
- [Instructions \(Single Site, Four Servers\)](#)

Overview

A service person arrives with a laptop and connects it to the serial port on the down server. The laptop runs a terminal emulation program and functions as the console terminal because VCX servers have no keyboard or monitor.

The service person performs these steps on the down server:

- Replace the disk drive and reboot the system.
- Wait for the system to complete the reboot process and then configure the server's networking parameters.
- If the down server is part of a redundant pair of servers, compare the software version on the down server to the software version on the partner server and, if necessary, download and install a software upgrade file on the down server.
- Switch to the new software version.
- Compare the version of the currently active operating system to the inactive version and, if necessary, switch to the more recent version.
- Reboot the server.
- Reinstall the license file for the server. The license file must have been saved before the disk failure occurred.
- Configure VCX services.
- After the configuration script exits, perform any additional procedures required, depending on the type of server (for example, restore a database backup file, configure database replication, and so on).

**Instructions
(Single Site,
Two Servers)**

Use the appropriate instructions from this section to replace the disk on the Primary or Secondary VCX Server and bring the server back into service.



If this server is configured for RAID operation, see [“RAID Disk Failure”](#), earlier in this appendix.

- 1 Replace the failed disk and start the server.
 - a Remove power from the down server.
 - b Remove the failed disk.
 - c Install the replacement disk.
 - d Reapply power to the server.
 - e Press the start button on the front panel.
- 2 After the server has started and the login prompt appears, log in as *root* and configure networking parameters on the down server by entering this command:

```
vcx-config-network --wizard
```

If the down server is the primary VCX server, follow the instructions in [“Configuring a Primary IP Telephony and Messaging Server”](#) in [Chapter 2](#).

If the down server is the secondary VCX server, follow the instructions in [“Configuring a Secondary IP Telephony and Messaging Server”](#) in [Chapter 2](#).

- 3 If necessary, upgrade the software on the down server to match the software version on the partner server.
 - a Compare the software version on the down server to the software version on the running server.
On the running server and on the down server, enter this command:

```
vcx-showversion
```
 - b If the down server is running an earlier software version than the running server, download the appropriate software upgrade file to the `/opt/installtemp` directory on the down server.



The location of the software upgrade file depends on 3Com’s service delivery methods and on the customer network configuration.



Software upgrade file names begin with the software version and end in a `.tar` extension (for example: `vcx-all-6.0.2c.tar`). The examples in this section assume that you need to upgrade to VCX 6.0.2c.

- c Install the software upgrade file using these commands:

```
cd /opt/installtemp
tar xvf vcx-all-6.0.2c
cd upgrade-6.0.2c
./install-upgrade
```

- d Switch to the upgraded version of the software using this command:

```
vcx-switchversion --manual 6.0.2c
```

Normally the `vcx-switchversion` command is used with the `--manual` option to downgrade to a previous software version. When you use it in a disk replacement procedure, you can safely ignore this message:

To complete the VCX switchversion operation please restore the IP Messaging and Oracle databases. After these have been restored you may reboot the system.

- e Compare the version of the currently active operating system to the version in the inactive partition using this command:

```
vcx-os-query
```

In the output from this command, the second column contains the operating system version for the two partitions (A and B) and the last column indicates which partition is currently active.

Example Output From the `vcx-os-query` Command

OS	Version	Partition	Label	Status
A	3.3.0	/dev/sda2	/	active
B	3.3.1	/dev/sda3	/B	

In the example, the active operating system version is 3.3.0 and the version in the inactive partition is 3.3.1.

- f Switch to the more recent version of the operating system using this command:

```
vcx-os-switch 3.3.1
```

- 4 Reboot the down server using this command:

```
reboot
```

- 5 After the reboot process has been completed, configure VCX services on the down server using this command:

```
vcx-setup
```

The script detects that you have already configured the networking parameters for the server and prompts you to configure VCX services.

If the down server is the primary VCX server, follow the instructions in [“Configuring a Primary IP Telephony and Messaging Server”](#) in [Chapter 2](#).

If the down server is the secondary VCX server, follow the instructions in [“Configuring a Secondary IP Telephony and Messaging Server”](#) in [Chapter 2](#).

After VCX Services have been configured, this message appears.

Please wait while the wizard completes.

The script displays several status messages and exits.

6 Stop all VCX processes on the down server.

- a** On the down server, log in as *root*. The default password for the root account is *padmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b** Enter these commands:

```
cd /etc/init.d
./vcx stop
```

7 On the running server, back up the IPMSG database. For instructions, see the *IPMSG Operations and System Administration Guide*.

8 Stop all VCX processes on the running server.

- a** Log in as *root*.
- b** Enter these commands:

```
cd /etc/init.d
./vcx stop
```

9 Drop database replication on the running server.

- a** Log in as *cworks*.
- b** Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./dropReplication
```

- c** Enter the site ID.

- 10 Back up the Oracle database on the running server. For instructions, see the *VCX Administration Guide*.
- 11 Transfer the Oracle database backup files from the running server to the down server. For instructions, see the *VCX Administration Guide*.



CAUTION: When you use the `scp` command to copy the database backup files to the down server, you may see a warning message about a “man in the middle” attack. This message indicates that the security key that was associated with the down server has changed, and the running server does not recognize the down server’s new security key. The change to the security key is a normal consequence of the disk replacement process.

To resolve this issue, locate the `known_hosts` file on the running server (`/opt/home/cworks/.ssh/known_hosts`) and perform one of these actions:

- Edit the file, locate the line that contains the IP address of the down server, and replace the old key with the new key.
 - Edit the file, locate the line that contains the IP address of the down server and remove that line.
 - Delete the `known_hosts` file. If you use this method, the next time you try to access any of the other VCX servers using commands such as `scp` or `ssh`, you will be prompted to confirm that you want to trust the target server.
- 12 Restore the database on the down server. For instructions, see the *VCX Administration Guide*.
 - 13 Set up Oracle database replication on either of the servers.
 - a On the running server or the down server, log in as `cworks`.
 - b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./setupReplication
```



You must know which server is the Master Definition Site and provide the IP address when the script prompts for this information.

The script asks for the IP addresses of the two servers and then checks the replication state of the authentication databases on them. After the check, database replication begins.

14 Restore Intelligent Mirroring for IP Messaging.

- a Transfer the IPMSG database backup files (that you saved in a previous step) to the down server and place them in this directory (you must first create the directory):

```
/opt/3comdata/umsdata/backup/DATE/
```

DATE is the date on which the IP Messaging backup script was run. The format is mm_dd_yy.



CAUTION: When you use the `scp` command to copy the database backup files to the down server, you may see a warning message about a “man in the middle” attack. This message indicates that the security key that was associated with the down server has changed, and the running server does not recognize the down server’s new security key. The change to the security key is a normal consequence of the disk replacement process.

To resolve this issue, locate the `known_hosts` file on the running server (`/opt/home/cworks/.ssh/known_hosts`) and perform one of these actions:

- Edit the file, locate the line that contains the IP address of the down server, and replace the old key with the new key.
 - Edit the file, locate the line that contains the IP address of the down server and remove that line.
 - Delete the `known_hosts` file. If you use this method, the next time you try to access any of the other VCX servers using commands such as `scp` or `ssh`, you will be prompted to confirm that you want to trust the target server.
- b On the down server, restore the IPMSG database. For instructions, see the *IPMSG Operations and System Administration Guide*.

15 Verify that Oracle database replication has been completed.

- a On the running server or the down server, log in as `cworks`.
- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./checkReplication
```

The script asks for the site ID and the IP addresses of the two servers and then checks the replication state of the authentication databases and reports the status.

If replication has been completed, you see this message:

```
INFO: Multi-Master Replication STATUS:
*****
*****  NORMAL  *****
*****
```

If you see a different status message, database replication has not yet been completed.

- 16 Ensure that the codec that is installed on the running server is installed on the down server.

- a On the running server, log in as root.

- b Enter these commands.

```
cd /opt/3com/VCX/UMS/app/app.dir
grep Codec config.app
```

The output from this command indicates which codec is being used on the running server.

Example: Codec_Supported=g711u

- c On down server, install the same codec.

```
cd /usr/app/app.dir
./change_codec g711u
```

- 17 Ensure that the language packages that are installed on the running server are installed on the down server.

- a On the running server, log in as root.

- b Enter these commands:

```
cd /opt/3com/VCX/UMS/app/app.dir
grep sys_lang vmail.cfg
```

The output from this command lists the language packages that are installed.

Example: sys_lang=SP_Spanish,f2,qu

- c On the down server, install each of the listed language packages.



CAUTION: Install the language file that corresponds to the appropriate codec. Installing the incorrect file name will cause system problems. The name of each language file contains the codec type within it. For example, *IPMSG-SP-SP-G711u-SPEAK-1-2.i386.rpm* indicates that the file is configured to use the G711u codec.

```
cd /opt/installtemp/
```

For each language package that you want to install, use the `vcx-install` command with the appropriate file name.

Example: `vcx-install IPMSG-SP-SP-G711u-SPEAK-1-2.i386.rpm`

- 18** To add each of the languages that you just installed, enter these commands.

```
cd /opt/3com/VCX/UMS/app/app.dir
./add_language
```

Follow the instructions to add the languages that you want.

- 19** On the primary server, restart all VCX services.

- a** Log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b** Enter these commands:

```
cd /etc/init.d
./vcx start
```

- 20** On the secondary server, restart all VCX services.

- a** Log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b** Enter these commands:

```
cd /etc/init.d
./vcx start
```



This marks the end of the outage.

**Instructions
(Single Site,
Four Servers)**

Use the instructions in this section to replace the disk on a:

- Primary or Secondary IP Telephony Server
- Primary or Secondary IP Messaging Server



1 If the server is configured for RAID operation, see [“RAID Disk Failure”](#), earlier in this appendix.

- 1 Replace the failed disk.
 - a Remove power from the down server.
 - b Remove the failed disk.
 - c Install the replacement disk.
 - d Apply power to the server.
 - e Press the start button on the front panel.
- 2 Log in as *root* and configure the networking parameters on the down server using this command:

```
vcx-config-network --wizard
```

If the down server is the Primary IP Telephony Server, follow the instructions in [“Configuring a Primary IP Telephony Server \(Single Site\)”](#) in [Chapter 3](#).

If the down server is the Secondary IP Telephony Server, follow the instructions in [“Configuring a Secondary IP Telephony Server \(Single Site\)”](#) in [Chapter 3](#).

If the down server is the primary IP Messaging Server, follow the instructions in [“Configuring a Primary IP Messaging Server”](#) in [Chapter 4](#).

If the down server is the Secondary IP Messaging Server, follow the instructions in [“Configuring a Secondary IP Messaging Server”](#) in [Chapter 4](#).

- 3 If necessary, upgrade the software version on the down server to match the software version on the running server.

- a Compare the software version on the down server to the software version on the running server.

On the running server and on the down server, enter this command:

```
vcx-showversion
```

- b If the down server is running an earlier software version than the running server, download the appropriate software upgrade file to the `/opt/installtemp` directory on the down server.



The location of the software upgrade file depends on 3Com's service delivery methods and on the customer network configuration.



Software upgrade file names begin with the software version and end in a `.tar` extension (for example: `vcx-softswitch-6.0.2c.tar` or `vcx-ipmsg-6.0.2c`). The examples in this section assume that you need to upgrade to VCX 6.0.2c.

- c If the down server is the *Primary or Secondary IP Telephony Server*, install the software upgrade file using these commands:

```
cd /opt/installtemp
tar xvf vcx-softswitch-6.0.2c
cd upgrade-6.0.2c
./install-upgrade
```

If the down server is the *Primary or Secondary IP Messaging Server*, install the software upgrade file using these commands:

```
cd /opt/installtemp
tar xvf vcx-ipmsg-6.0.2c
cd upgrade-6.0.2c
./install-upgrade
```

- d On the down server, switch to the upgraded version of the software using this command:

```
vcx-switchversion --manual 6.0.2c
```



Normally the vcx-switchversion command is used with the --manual option to downgrade to a previous software version. When you use it in a disk replacement procedure, you can safely ignore this message:

To complete the VCX switchversion operation please restore the IP Messaging and Oracle databases. After these have been restored you may reboot the system.

- e Compare the version of the currently active operating system to the version in the inactive partition, using this command:

```
vcx-os-query
```

In the output from this command, the second column contains the operating system version for the two partitions (A and B) and the last column indicates which partition is currently active.

Example Output From the vcx-os-query Command

OS	Version	Partition	Label	Status
A	3.3.0	/dev/sda2	/	active
B	3.3.1	/dev/sda3	/B	

In the example, the active operating system version is 3.3.0 and the version in the inactive partition is 3.3.1.

- f Switch to the more recent version of the operating system using this command:

```
vcx-os-switch 3.3.1
```

- 4 Reboot the down server using this command:

```
reboot
```

- 5 After the reboot process has been completed, configure VCX services on the down server using this command:

```
vcx-setup
```

The script detects that you have already configured the networking parameters for the server and prompts you to configure VCX services.

If the down server is the Primary IP Telephony Server, follow the instructions in [“Configuring a Primary IP Telephony Server \(Single Site\)”](#) in [Chapter 3](#).

If the down server is the Secondary IP Telephony Server, follow the instructions in [“Configuring a Secondary IP Telephony Server \(Single Site\)”](#) in [Chapter 3](#).

If the down server is the Primary IP Messaging Server, follow the instructions in [“Configuring a Primary IP Messaging Server”](#) in [Chapter 4](#).

If the down server is the Secondary IP Messaging Server, follow the instructions in [“Configuring a Secondary IP Messaging Server”](#) in [Chapter 4](#).

After VCX Services have been configured, this message appears.

```
Please wait while the wizard completes.
```

The script displays several status messages and exits.

Completing the Disk Replacement Process

If the replacement disk is installed on a Primary or Secondary IP Messaging Server, see [“Restoring an IP Messaging Server to Service”](#) later in this section. If the replacement disk is installed on a Primary or Secondary IP Telephony Server, see [“Restoring an IP Telephony Server to Service”](#) next.

Restoring an IP Telephony Server to Service

Follow the instructions in this section to complete the disk replacement on a Primary or Secondary IP Telephony Server.

- 1 Stop all VCX processes on the down server.

- a On the down server, log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b Enter these commands:

```
cd /etc/init.d
./vcx stop
```

- 2 Stop all VCX processes on the running server.

- a On the running server, log in as *root*

- b Enter these commands:

```
cd /etc/init.d
./vcx stop
```

- 3 Update the Oracle database on the down server.

- a On the running server, log in as *cworks*.

- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./dropReplication
```

- c Enter the site ID.

- d Back up the Oracle database on the running server.



For instructions on how to back up the Oracle database, see the VCX Administration Guide.

- e Transfer the Oracle database backup files from the running server to the down server. See the *VCX Administration Guide* for instructions.



CAUTION: When you use the *scp* command to copy the database backup files to the down server, you may see a warning message about a “man in the middle” attack. This message indicates that the security key that was associated with the down server has changed, and the running server does not recognize the down server’s new security key. The change

to the security key is a normal consequence of the disk replacement process.

To resolve this issue, locate the `known_hosts` file on the running server (`/opt/home/cworks/.ssh/known_hosts`) and perform one of these actions:

- Edit the file, locate the line that contains the IP address of the down server, and replace the old key with the new key.
 - Edit the file, locate the line that contains the IP address of the down server and remove that line.
 - Delete the `known_hosts` file. If you use this method, the next time you try to access any of the other VCX servers using commands such as `scp` or `ssh`, you will be prompted to confirm that you want to trust the target server.
- f Restore the database on the down server. See the *VCX Administration Guide* for instructions.

4 Set up Oracle database replication on either of the servers.

- a On the running server, log in as `cworks`.
- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./setupReplication
```



You must know which server is the Master Definition Site and provide the IP address when the script prompts for this information.

The script asks for the IP addresses of the two servers and then checks the replication state of the authentication databases on them. After the check, database replication begins.

5 Verify that Oracle database replication has been completed

- a Log in as `cworks`.
- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./checkReplication
```

The script asks for the site ID and the IP addresses of the two servers and then checks the replication state of the authentication databases and reports the status.

If replication has been completed, you see this message:

```
INFO: Multi-Master Replication STATUS:
*****
*****  NORMAL  *****
*****
```

If you see a different status message, database replication has not yet been completed.

6 Restart VCX services on the primary server.

- a** Log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b** Enter these commands:

```
cd /etc/init.d
./vcx start
```

7 Restart all VCX services on the secondary server.

- a** Log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b** Enter these commands:

```
cd /etc/init.d
./vcx start
```



This marks the end of the outage.

Restoring an IP Messaging Server to Service

Follow the instructions in this section to replace a disk on a Primary or Secondary IP Messaging Server. For a Primary or Secondary IP Telephony Server, see [“Restoring an IP Telephony Server to Service”](#) earlier in this section.

1 Stop all VCX processes on the down server.

- a** On the down server, log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b** Enter these commands:

```
cd /etc/init.d
./vcx stop
```

- 2** Back up the IPMSG database on the running server. For instructions, see the *IPMSG Operations and System Administration Guide*.

- 3** Stop all VCX processes on the running server.

- a** Log in as *root* and enter these commands:

```
cd /etc/init.d
./vcx stop
```

- 4** Restore Intelligent Mirroring for IP Messaging.

- a** Transfer the IPMSG database backup files (that you saved in a previous step) to the down server and place them in this directory (you must first create the directory):

```
/opt/3comdata/umsdata/backup/DATE/
```

DATE is the date on which the IP Messaging backup script was run. The format is mm_dd_yy.



CAUTION: When you use the *scp* command to copy the database backup files to the down server, you may see a warning message about a “man in the middle” attack. This message indicates that the security key that was associated with the down server has changed, and the running server does not recognize the down server’s new security key. The change to the security key is a normal consequence of the disk replacement process.

To resolve this issue, locate the `known_hosts` file on the running server (`/opt/home/cworks/.ssh/known_hosts`) and perform one of these actions:

- Edit the file, locate the line that contains the IP address of the down server, and replace the old key with the new key.
 - Edit the file, locate the line that contains the IP address of the down server and remove that line.
 - Delete the `known_hosts` file. If you use this method, the next time you try to access any of the other VCX servers using commands such as *scp* or *ssh*, you will be prompted to confirm that you want to trust the target server.
- b** On the down server, restore the IPMSG database. For instructions, see the *IPMSG Operations and System Administration Guide*.

- 5 Ensure that the codec that is installed on the running server is installed on the down server.

- a On the running server, log in as root.

- b Enter these commands.

```
cd /opt/3com/VCX/UMS/app/app.dir
grep Codec config.app
```

The output from this command indicates which codec is being used on the running server.

Example: Codec_Supported=g711u

- c On down server, install the same codec.

```
cd /usr/app/app.dir
./change_codec g711u
```

- 6 Ensure that the language packages that are installed on the running server are installed on the down server.

- a On the running server, log in as root.

- b Enter these commands:

```
cd /opt/3com/VCX/UMS/app/app.dir
grep sys_lang vmail.cfg
```

The output from this command lists the language packages that are installed.

Example: sys_lang=SP_Spanish,f2,qu



If no languages other than the default (United States English) have been installed on your VCX system, the grep command returns nothing.

- c On the down server, install each of the listed language packages.



CAUTION: Install the language file that corresponds to the appropriate codec. Installing the incorrect file name will cause system problems. The name of each language file contains the codec type within it. For example, *IPMSG-SP-SP-G711u-SPEAK-1-2.i386.rpm* indicates that the file is configured to use the G771u codec.

```
cd /opt/installtemp/
```

For each language package that you want to install, use the `vcx-install` command with the appropriate file name.

Example: `vcx-install IPMSG-SP-SP-G711u-SPEAK-1-2.i386.rpm`

- 7 To add each of the languages that you just installed, enter these commands.

```
cd /opt/3com/VCX/UMS/app/app.dir
./add_language
```

Follow the instructions to add the languages that you want.

- 8 Restart VCX services on the Primary VCX Server.

a Log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the "VCX Security Guide."

b Enter these commands:

```
cd /etc/init.d
./vcx start
```

- 9 Restart VCX services on the secondary server.

a Log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the "VCX Security Guide."

b Enter these commands:

```
cd /etc/init.d
./vcx start
```



This marks the end of the outage.

Replacing a Disk (Regional Office)

Use the procedures in this section to replace a disk on one of the servers at a regional office.

- [Replacing an IP Telephony and Messaging Disk](#)
- [Replacing a Call Processing Server Disk](#)
- [Replacing an IP Messaging Disk](#)
- [Replacing an Authentication and Directory Server Disk](#)
- [Replacing a Call Records Server Disk](#)
- [Replacing a Disk \(Branch Office\)](#)
 - [Replacing a Disk on an IP Telephony and Messaging Server](#)
 - [Replacing a Disk on an IP Telephony Server](#)

Replacing an IP Telephony and Messaging Disk

In each regional office that has no associated branch offices there are two IP Telephony and Messaging Servers. To replace a failed disk on one of the servers, see [“Replacing a Disk \(Single Site\)”](#) earlier in this chapter.

Replacing a Call Processing Server Disk

In each regional office, there are two Call Processing Servers. To replace the disk in either the Primary Call Processing Server or the Secondary Call Processing Server, follow the instructions in this section.



If this server is configured for RAID operation, see [“RAID Disk Failure”](#), earlier in this appendix.

- 1 Replace the failed disk.
 - a Remove power from the down server.
 - b Remove the failed disk.
 - c Install the replacement disk.
 - d Apply power to the server.
 - e Press the start button on the front panel.
- 2 Log in as `root` and configure the networking parameters on the down server using this command:

```
vcx-config-network --wizard
```

If the down server is the Primary IP Telephony Server, follow the instructions in [“Configuring a Primary Call Processing Server”](#) in [Chapter 5](#).

If the down server is the Secondary IP Telephony Server, follow the instructions in [“Configuring a Secondary Call Processing Server”](#) in [Chapter 5](#).

- 3 If necessary, upgrade the software version on the down server to match the software version on the running server.

- a Compare the software version on the down server to the software version on the running server.

On the running server and on the down server, enter this command:

```
vcx-showversion
```

- b If the down server is running an earlier software version than the running server, download the appropriate software upgrade file to the `/opt/installtemp` directory on the down server.



The location of the software upgrade file depends on 3Com's service delivery methods and on the customer network configuration.



Software upgrade file names begin with the software version and end in a .tar extension (for example: `vcx-softswitch-6.0.2c.tar` or `vcx-ipmsg-6.0.2c`). The examples in this section assume that you need to upgrade to VCX 6.0.2c.

- c If the down server is the *Primary or Secondary IP Telephony Server*, install the software upgrade file using these commands:

```
cd /opt/installtemp  
tar xvf vcx-callserver-6.0.2c  
cd upgrade-6.0.2c  
./install-upgrade
```

- d On the down server, switch to the upgraded version of the software using this command:

```
vcx-switchversion --manual 6.0.2c
```



Normally the `vcx-switchversion` command is used with the `--manual` option to downgrade to a previous software version. When you use it in a disk replacement procedure, you can safely ignore this message:

To complete the VCX switchversion operation please restore the IP Messaging and Oracle databases. After these have been restored you may reboot the system.

- e Compare the version of the currently active operating system to the version in the inactive partition, using this command:

```
vcx-os-query
```

In the output from this command, the second column contains the operating system version for the two partitions (A and B) and the last column indicates which partition is currently active.

Example Output From the `vcx-os-query` Command

OS	Version	Partition	Label	Status
A	3.3.0	/dev/sda2	/	active
B	3.3.1	/dev/sda3	/B	

In the example, the active operating system version is 3.3.0 and the version in the inactive partition is 3.3.1.

- f** Switch to the more recent version of the operating system using this command:

```
vcx-os-switch 3.3.1
```

- 4** Reboot the down server using this command:

```
reboot
```

- 5** After the reboot process has been completed, configure VCX services on the down server using this command:

```
vcx-setup
```

The script detects that you have already configured the networking parameters for the server and prompts you to configure VCX services.

If the down server is the Primary IP Telephony Server, follow the instructions in [“Configuring a Primary Call Processing Server”](#) in [Chapter 5](#).

If the down server is the Secondary IP Telephony Server, follow the instructions in [“Configuring a Secondary Call Processing Server”](#) in [Chapter 5](#).

After VCX Services have been configured, this message appears.

```
Please wait while the wizard completes.
```

The script displays several status messages and exits.



This marks the end of the outage.

Replacing an IP Messaging Disk

A VCX system that is configured for global IP Messaging has one IP Messaging Server in each regional office. The secondary IP Messaging server is located in the remote regional office.

A VCX system that is configured for local IP Messaging has a Primary and Secondary IP Messaging Server in each regional office.

Use the instructions in this section to replace the disk on a Primary or Secondary IP Messaging Server in a global or local IP Messaging configuration.



If this server is configured for RAID operation, see [“RAID Disk Failure”](#), earlier in this appendix.

- 1 Replace the failed disk.
 - a Remove power from the down server.
 - b Remove the failed disk.
 - c Install the replacement disk.
 - d Apply power to the server.
 - e Press the start button on the front panel.
- 2 Log in as *root* and configure the networking parameters on the down server using this command:

```
vcx-config-network --wizard
```

If the down server is the primary IP Messaging Server, follow the instructions in [“Configuring a Primary IP Messaging Server”](#) in [Chapter 4](#).

If the down server is the Secondary IP Messaging Server, follow the instructions in [“Configuring a Secondary IP Messaging Server”](#) in [Chapter 4](#).

- 3 If necessary, upgrade the software version on the down server to match the software version on the running server.
 - a Compare the software version on the down server to the software version on the running server.
On the running server and on the down server, enter this command:

```
vcx-showversion
```
 - b If the down server is running an earlier software version than the running server, download the appropriate software upgrade file to the `/opt/installtemp` directory on the down server.



The location of the software upgrade file depends on 3Com's service delivery methods and on the customer network configuration.



Software upgrade file names begin with the software version and end in a .tar extension (for example: vcx-ipmsg-6.0.2c.tar). The examples in this section assume that you need to upgrade to VCX 6.0.2c.

- c** Install the software upgrade file using these commands:

```
cd /opt/installtemp
tar xvf vcx-ipmsg-6.0.2c
cd upgrade-6_0_2c
./install-upgrade
```

- d** Switch to the upgraded version of the software using this command:

```
vcx-switchversion --manual 6.0.2c
```



Normally the vcx-switchversion command is used with the --manual option to downgrade to a previous software version. When you use it in a disk replacement procedure, you can safely ignore this message:

To complete the VCX switchversion operation please restore the IP Messaging and Oracle databases. After these have been restored you may reboot the system.

- e** Compare the version of the currently active operating system to the version in the inactive partition, using this command:

```
vcx-os-query
```

In the output from this command, the second column contains the operating system version for the two partitions (A and B) and the last column indicates which partition is currently active.

Example Output From the vcx-os-query Command

OS	Version	Partition	Label	Status
A	3.3.0	/dev/sda2	/	active
B	3.3.1	/dev/sda3	/B	

In the example, the active operating system version is 3.3.0 and the version in the inactive partition is 3.3.1.

- f** Switch to the more recent version of the operating system using this command:

```
vcx-os-switch 3.3.1
```

- 4** Reboot the down server using this command:

```
reboot
```

- 5 After the reboot process has been completed, configure VCX services on the down server using this command:

vcx-setup

The script detects that you have already configured the networking parameters for the server and prompts you to configure VCX services.

If the down server is the Primary IP Messaging Server, follow the instructions in [“Configuring a Primary IP Messaging Server”](#) in [Chapter 4](#).

If the down server is the Secondary IP Messaging Server, follow the instructions in [“Configuring a Secondary IP Messaging Server”](#) in [Chapter 4](#).

After VCX Services have been configured, this message appears.

```
Please wait while the wizard completes.
```

The script displays several status messages and exits.

Restoring an IP Messaging Server to Service

Follow the instructions in this section to complete a disk replacement on a Primary or Secondary IP Messaging Server.

- 1 Stop all VCX processes on the down server.
 - a On the down server, log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b Enter these commands:

```
cd /etc/init.d
./vcx stop
```

- 2 Back up the IPMSG database on the running server. For instructions, see the *IPMSG Operations and System Administration Guide*.
- 3 Stop all VCX processes on the running server.
 - a Log in as *root* and enter these commands:

```
cd /etc/init.d
./vcx stop
```

4 Restore Intelligent Mirroring for IP Messaging.

- a Transfer the IPMSG database backup files (that you saved in a previous step) to the down server and place them in this directory (you must first create the directory):

```
/opt/3comdata/umsdata/backup/DATE/
```

DATE is the date on which the IP Messaging backup script was run. The format is mm_dd_yy.



CAUTION: When you use the `scp` command to copy the database backup files to the down server, you may see a warning message about a “man in the middle” attack. This message indicates that the security key that was associated with the down server has changed, and the running server does not recognize the down server’s new security key. The change to the security key is a normal consequence of the disk replacement process.

To resolve this issue, locate the `known_hosts` file on the running server (`/opt/home/cworks/.ssh/known_hosts`) and perform one of these actions:

- Edit the file, locate the line that contains the IP address of the down server, and replace the old key with the new key.
 - Edit the file, locate the line that contains the IP address of the down server and remove that line.
 - Delete the `known_hosts` file. If you use this method, the next time you try to access any of the other VCX servers using commands such as `scp` or `ssh`, you will be prompted to confirm that you want to trust the target server.
- b On the down server, restore the IPMSG database. For instructions, see the *IPMSG Operations and System Administration Guide*.
- #### 5 Ensure that the codec that is installed on the running server is installed on the down server.
- a On the running server, log in as root.
 - b Enter these commands.

```
cd /opt/3com/VCX/UMS/app/app.dir
grep Codec config.app
```

The output from this command indicates which codec is being used on the running server.

Example: `Codec_Supported=g711u`

- c On down server, install the same codec.

```
cd /usr/app/app.dir
./change_codec g711u
```

- 6 Ensure that the language packages that are installed on the running server are installed on the down server.

- a On the running server, log in as root.

- b Enter these commands:

```
cd /opt/3com/VCX/UMS/app/app.dir
grep sys_lang vmail.cfg
```

The output from this command lists the language packages that are installed.

Example: `sys_lang=SP_Spanish,f2,qu`



If no languages other than the default (United States English) have been installed on your VCX system, the grep command returns nothing.

- c On the down server, install each of the listed language packages.



CAUTION: Install the language file that corresponds to the appropriate codec. Installing the incorrect file name will cause system problems. The name of each language file contains the codec type within it. For example, `IPMSG-SP-SP-G711u-SPEAK-1-2.i386.rpm` indicates that the file is configured to use the G711u codec.

```
cd /opt/installtemp/
```

For each language package that you want to install, use the `vcx-install` command with the appropriate file name.

Example: `vcx-install IPMSG-SP-SP-G711u-SPEAK-1-2.i386.rpm`

- 7 To add each of the languages that you just installed, enter these commands.

```
cd /opt/3com/VCX/UMS/app/app.dir
./add_language
```

Follow the instructions to add the languages that you want.

- 8 Restart VCX services on the *Primary IP Messaging Server*.

- a Log in as root. The default password for the root account is `padmin`.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the "VCX Security Guide."

- b** Enter these commands:

```
cd /etc/init.d
./vcx start
```

- 9** Restart VCX services on the *Secondary IP Messaging Server*.

- a** Log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: 3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”

- b** Enter these commands:

```
cd /etc/init.d
./vcx start
```

After VCX services have started on the Primary and Secondary IP Messaging Servers, the VCX system is fully operational.



This marks the end of the outage.

Replacing an Authentication and Directory Server Disk

In each regional office there is one Authentication and Directory Server. On each of these servers, database replication is configured for:

- Each branch office that is associated with the local regional office
- The Authentication and Directory Server in the remote regional office



The instructions in this section assume two regional offices only, with database replication between the Authentication and Directory Servers (one in each of the regional offices). Database replication between Authentication and Directory servers in multiple regions is more complex. For assistance in configuring multiple regional offices contact 3Com Customer Service or your Voice Authorized 3Com Reseller.

Terminology: In this section, the term “down server” refers to the server that is located in the local regional office. The term “running server” refers to the server that is located in the remote regional office.



If this server is configured for RAID operation, see [“RAID Disk Failure”](#), earlier in this appendix.

Initial Configuration of the Replacement Disk

- 1 Replace the failed disk.
 - a Remove power from the down server.
 - b Remove the failed disk.
 - c Install the replacement disk.
 - d Apply power to the server.
 - e Press the start button on the front panel.
- 2 Log in as *root* and configure the networking parameters on the down server using this command:

```
vcx-config-network --wizard
```

Follow the instructions in [“Configuring a Primary Authentication and Directory Server”](#) in [Chapter 7](#).

- 3 If necessary, upgrade the software version on the down server to match the software version on the running server.
 - a Compare the software version on the down server to the software version on the running server.

On the running server and on the down server, enter this command:

```
vcx-showversion
```

- b If the down server is running an earlier software version than the running server, download the appropriate software upgrade file to the `/opt/installtemp` directory on the down server.



The location of the software upgrade file depends on 3Com's service delivery methods and on the customer network configuration.



Software upgrade file names begin with the software version and end in a .tar extension (for example: `vcx-ipmsg-6.0.2c.tar`). The examples in this section assume that you need to upgrade to VCX 6.0.2c.

- c Install the software upgrade file using these commands:

```
cd /opt/installtemp  
tar xvf vcx-dataserver-6.0.2c  
cd upgrade-6_0_2c  
./install-upgrade
```

- d Switch to the upgraded version of the software using this command:

```
vcx-switchversion --manual 6.0.2c
```



Normally the `vcx-switchversion` command is used with the `--manual` option to downgrade to a previous software version. When you use it in a disk replacement procedure, you can safely ignore this message:

To complete the VCX switchversion operation please restore the IP Messaging and Oracle databases. After these have been restored you may reboot the system.

- e** Compare the version of the currently active operating system to the version in the inactive partition, using this command:

`vcx-os-query`

In the output from this command, the second column contains the operating system version for the two partitions (A and B) and the last column indicates which partition is currently active.

Example Output From the vcx-os-query Command

OS	Version	Partition	Label	Status
A	3.3.0	/dev/sda2	/	active
B	3.3.1	/dev/sda3	/B	

In the example, the active operating system version is 3.3.0 and the version in the inactive partition is 3.3.1.

- f** Switch to the more recent version of the operating system using this command:

```
vcx-os-switch 3.3.1
```

- 4** Reboot the down server using this command:

```
reboot
```

Configuration of VCX Services

After the reboot process has been completed, configure VCX services on the down server using this command:

```
vcx-setup
```

The script detects that you have already configured the networking parameters for the server and prompts you to configure VCX services.

Follow the instructions in [“Configuring a Primary Authentication and Directory Server”](#) in [Chapter 7](#).

After VCX Services have been configured, this message appears.

```
Please wait while the wizard completes.
```

The script displays several status messages and exits.

Final Configuration of the Authentication and Directory Server

- 1** For each branch office that is associated with the local regional office, configure the VCX Firewall software to permit Oracle access. For example, to configure access for four branch offices with IP addresses 10.50.101.5 through 10.50.104.5, use these commands:

```
modfw -p oracle allow 10.50.101.5
```

```
modfw -p oracle allow 10.50.102.5
```

```
modfw -p oracle allow 10.50.103.5
```

```
modfw -p oracle allow 10.50.104.5
```

- 2 On the Primary Call Server in the *local* regional office, stop the tomcat process.
 - a Log in as *root*.
 - b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat stop
```
- 3 On the Secondary Call Server in the *local* regional office, stop the tomcat process.
 - a Log in as *root*.
 - b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat stop
```
- 4 On the Primary Call Server in the *remote* regional office, stop the tomcat process.
 - a Log in as *root*.
 - b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat stop
```
- 5 On the Secondary Call Server in the *remote* regional office, stop the tomcat process.
 - a Log in as *root*.
 - b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat stop
```
- 6 On the running Authentication and Directory Server in the remote regional office, drop replication for each of the two regional databases.
 - a Log in as *cworks*.
 - b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./dropReplication
```
 - c Enter the site ID for the first region.
 - d Enter this command:

```
./dropReplication
```

- e Enter the site ID for the second region.
- 7 On the running Authentication and Directory Server in the remote regional office, stop the vcxdata process.
 - a Log in as *root*.
 - b Enter these commands:


```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata stop
```
- 8 On the running Authentication and Directory Server in the remote regional office, back up each of the two regional databases. For instructions, see the *VCX Administration Guide*.
- 9 On the running Authentication and Directory Server in the remote regional office, start the vcxdata process.
 - a Log in as *root*.
 - b Enter these commands:


```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata start
```
- 10 On each branch office server that is associated with the local regional office:
 - a Stop the tomcat process.
 - Log in as *root*.
 - Enter these commands:


```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat stop
```
 - b Stop the vcxdata process.
 - Log in as *root*.
 - Enter these commands:


```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata stop
```
 - c Drop database replication for the branch's database.
 - Log in as *cworks*.
 - Enter these commands:


```
cd /opt/3com/VCX/vcxdata/bin
./dropReplication
```

- Enter the site ID of the branch.



The Master Definition Site is an Oracle term. In this case, it refers to the regional Authentication and Directory Server.

- d** Back up the branch's database. For instructions, see the *VCX Administration Guide*.

- e** Start the tomcat process.

- Log in as *root*.
- Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat start
```

- f** Start the vcxdata process.

- Log in as *cworks*.
- Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata start
```

- 11** On the down Authentication and Directory Server in the local regional office, install the database for the remote regional office.

- a** Log in as *cworks*.

- b** Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./installVcxdata
```

The script asks you whether you want to create a backup for a branch office or regional office.

You can now Create a Backup Database Schema for either another Regional Office or a Branch Office.

Please Enter the Appropriate Number to indicate your Choice:

1. Create a Backup Database Schema for a Branch Office
2. Create a Backup Database Schema for a Regional Office

Your Choice ? [1]:

- c** Enter **2**.

- d** When prompted, enter the site ID of the remote regional office.

- 12** On the down Authentication and Directory Server, install a database schema for *each* branch office that is associated with the local regional office.

- a Log in as *cworks*.
- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./installVcxdata
```

The script asks you whether you want to create a backup for a branch office or regional office.

You can now Create a Backup Database Schema for either another Regional Office or a Branch Office.

Please Enter the Appropriate Number to indicate your Choice:

- 1. Create a Backup Database Schema for a Branch Office
- 2. Create a Backup Database Schema for a Regional Office

Your Choice ? [1]:

- c Enter **1**.
- d When prompted, enter the site ID of the branch office.

- 13** Copy all database backup files to the down Authentication and Directory Server.

- a Copy the two regional database backup files from the running Authentication and Directory server in the remote regional office.
- b Copy the branch office database backup file from each branch office that is associated with the local regional office.

For instructions on how to locate the backup files and where to copy them, see the *VCX Administration Guide*.

- 14** On the down Authentication and Directory Server in the local regional office, stop the *vcxdata* process.

- a Log in as *root*.
- b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata stop
```

- 15** On the down Authentication and Directory Server in the local regional office, restore the two database backup files that you copied from the running Authentication and Directory server in the remote regional office. For detailed instructions, see the *VCX Administration Guide*.
- 16** On the down Authentication and Directory Server in the local regional office, restore the database backup files that you copied from each of the branch office servers. For detailed instructions, see the *VCX Administration Guide*.

- 17** On each branch office server that is associated with the local regional office, stop the tomcat process.

a Log in as *root*.

b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat stop
```

- 18** On each branch office server that is associated with the local regional office, stop the vcxdata process.

a Log in as *root*.

b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata stop
```

- 19** On the down Authentication and Directory Server in the local regional office, set up database replication for the local regional database with the remote regional office.

a Log in as *cworks*.

b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./setupReplication
```

c Enter the site ID for the local regional office.



The Master Definition Site is the local regional office.

- 20** On the down Authentication and Directory Server in the local regional office, set up database replication for the remote regional database with the local regional office.

a Log in as *cworks*.

b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./setupReplication
```

c Enter the site ID for the remote regional office.



The Master Definition Site is the remote regional office.

- 21** On the down Authentication and Directory Server in the local regional office, set up database replication for each of the branch office databases.

- a Log in as *cworks*.
- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./setupReplication
```

The script asks for the site ID of the branch office and then checks the replication state of the branch office database. After the check, database replication begins.



The Master Definition Site is the local regional office.

- 22 On the down Authentication and Directory Server in the local regional office, start *vcxdata*.

- a Log in as *root*.
- b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata start
```

- 23 On the running Authentication and Directory Server in the remote regional office, start the *vcxdata* process.

- a Log in as *root*.
- b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata start
```

- 24 On each branch office server that is associated with the local regional office, start the *vcxdata* process.

- a Log in as *root*.
- b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S20vcxdata start
```

- 25 Wait for at least 30 minutes and verify that database replication has been completed for the remote regional office and for each branch office.

- 26 After database replication has been completed for all databases, start Tomcat on both region Call Processing Servers and at all branch offices.

- a On the Call Processing Server in the remote regional office, log in as *root*.
- b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
```

```
./S70tomcat start
```

c On the Call Processing Server in the local regional office, log in as *root*.

d Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
```

```
./S70tomcat start
```

e On each branch office server, log in as *root*.

f Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
```

```
./S70tomcat start
```



This marks the end of the outage.

Replacing a Call Records Server Disk

Each multi-site VCX system has one Call Records Server that is located in one of the regional offices. Use the instructions in this section to replace a failed disk on a Call Records Server.



If this server is configured for RAID operation, see [“RAID Disk Failure”](#), earlier in this appendix.

- 1** Replace the failed disk.
 - a** Remove power from the down server.
 - b** Remove the failed disk.
 - c** Install the replacement disk.
 - d** Apply power to the server.
 - e** Press the start button on the front panel.
- 2** Configure the networking and services parameters on the down server using this command:

```
vcx-setup
```

For detailed instructions, see [“Configuring a Call Records Server”](#) in [Chapter 6](#).

- 3** After the setup has been completed, update the Call Records Server with the IP addresses of the Accounting Servers from which it must collect call records. See “Adding Accounting Servers to the Call Records Server” in the *VCX Administration Guide*.



This marks the end of the outage.

Replacing a Disk (Branch Office)

Use this procedure to replace a disk at a branch office. Possible servers at a branch office include:

- IP Telephony and Messaging (if the VCX system is configured for local IP Messaging)
- IP Telephony (if the VCX system is configured for global IP Messaging)

Replacing a Disk on an IP Telephony and Messaging Server

To replace a failed disk on a branch office IP Telephony and Messaging Server, use the instructions in this section.



If this server is configured for RAID operation, see [“RAID Disk Failure”](#), earlier in this appendix.

- 1 On the primary Call Processing Server that is located in the regional office and is associated with this branch office, log in as *root* and stop the *tomcat* process.



CAUTION: *Stopping the Tomcat process on the regional Call Processing Server has these effects:*

- *Users in the regional office who want to log in to the User Interface must access the Call Processing Server in the other regional office.*
- *Administrators in the regional office who want to log in to the Administrator Interface must access the Call Processing Server in the other region.*

- a Log in as *root*. The default password for the root account is *pvadmin*.



CAUTION: *3Com strongly recommends that customers change this password on all VCX servers. Guidelines about other passwords and other security-related issues can be found in the “VCX Security Guide.”*

- b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat stop
```

- 2 On the Authentication and Directory server in the regional office that is associated with this branch office, drop replication for the database for this branch office.

- a Log in as *cworks*.

- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./dropReplication
```

- c** Enter the site ID for the branch office.

- 3 Replace the failed disk on the branch office server.
 - a Remove power from the down server.
 - b Remove the failed disk.
 - c Install the replacement disk.
 - d Apply power to the server.
 - e Press the start button on the front panel.
- 4 Log in as *root* and configure networking parameters on the down server by entering this command:

```
vcx-config-network --wizard
```

Follow the instructions in [“Configuring a Branch Office IP Telephony and Messaging Server”](#) in [Chapter 2](#).

- 5 If necessary, upgrade the software on the down server to match the software version on other branch office servers.
 - a Compare the software version on the down server to the software version on another branch office server.
 On the other branch office server and on the down server, enter this command:

```
vcx-showversion
```
 - b If the down server is running an earlier software version than the other branch office server, download the appropriate software upgrade file to the `/opt/installtemp` directory on the down server.



The location of the software upgrade file depends on 3Com's service delivery methods and on the customer network configuration.



Software upgrade file names begin with the software version and end in a `.tar` extension (for example: `vcx-all-6.0.2c.tar`). The examples in this section assume that you need to upgrade to VCX 6.0.2c.

- c Install the software upgrade file using these commands:


```
cd /opt/installtemp  
tar xvf vcx-all-6.0.2c  
cd upgrade-6.0.2c  
./install-upgrade
```
- d Switch to the upgraded version of the software using this command:

```
vcx-switchversion --manual 6.0.2c
```

Normally the `vcx-switchversion` command is used with the `--manual` option to downgrade to a previous software version. When you use it in a disk replacement procedure, you can safely ignore this message:

To complete the VCX switchversion operation please restore the IP Messaging and Oracle databases. After these have been restored you may reboot the system.

- e Compare the version of the currently active operating system to the version in the inactive partition, using this command:

vcx-os-query

In the output from this command, the second column contains the operating system version for the two partitions (A and B) and the last column indicates which partition is currently active.

Example Output From the `vcx-os-query` Command

OS	Version	Partition	Label	Status
A	3.3.0	/dev/sda2	/	active
B	3.3.1	/dev/sda3	/B	

In the example, the active operating system version is 3.3.0 and the version in the inactive partition is 3.3.1.

- f Switch to the more recent version of the operating system using this command:

vcx-os-switch 3.3.1

- 6 Reboot the down server using this command:

reboot

- 7 After the reboot process has been completed, configure VCX services on the down server using this command:

vcx-setup

The script detects that you have already configured the networking parameters for the server and prompts you to configure VCX services.

- 8 On Authentication and Directory server in the regional office that is associated with this branch office, check replication for the database for this branch office and verify that the status is normal. Use these commands:

- a Log in as *cworks*.

- b** Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./checkReplication
```

- c** Enter the site ID of the remote regional office or the branch office.
If replication has been completed, you see this message:

```
INFO: Multi-Master Replication STATUS:
*****
*****  NORMAL  *****
*****
```

If you see a different status message, database replication has not yet been completed.

- 9** On the Call Processing Server that is located in the regional office that is associated with this branch office, start the Tomcat process.

- a** Log in as *root*.
b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat start
```

- 10** Ensure that the codec that is installed on the running server is installed on the down server.

- a** On the running server, log in as *root*.
b Enter these commands.

```
cd /opt/3com/VCX/UMS/app/app.dir
grep Codec config.app
```

The output from this command indicates which codec is being used on the running server.

Example: Codec_Supported=g711u

- c** On down server, install the same codec.

```
cd /usr/app/app.dir
./change_codec g711u
```

- 11** Ensure that the appropriate language packages are installed on the down server.

- a** On another branch office server, log in as *root*.

- b** Enter these commands:

```
cd /opt/3com/VCX/UMS/app/app.dir
grep sys_lang vmail.cfg
```

The output from this command lists the language packages that are installed.

Example: `sys_lang=SP_Spanish,f2,qu`



If no languages other than the default (United States English) have been installed on your VCX system, the grep command returns nothing.

- c** On the down server, install each of the listed language packages.



CAUTION: Install the language file that corresponds to the appropriate codec. Installing the incorrect file name will cause system problems. The name of each language file contains the codec type within it. For example, `IPMSG-SP-SP-G711u-SPEAK-1-2.i386.rpm` indicates that the file is configured to use the G771u codec.

```
cd /opt/installtemp/
vcx-install IPMSG-SP-SP-G711u-SPEAK-1-2.i386.rpm
```

- 12** To add each of the languages that you just installed, enter these commands.

```
cd /opt/3com/VCX/UMS/app/app.dir
./add_language
```

Follow the instructions to add the languages that you want.

- 13** Restore the IP Messaging database.



3Com recommends that customers back up VCX databases regularly. The instructions for restoring the IP Messaging database assume that recent backup files are available.

- a** Transfer the most recent IPMSG database backup files to the down server and place them in this directory (you must first create the directory):

```
/opt/3comdata/umsdata/backup/DATE/
```

DATE is the date on which the IP Messaging backup script was run. The format is `mm_dd_yy`.



CAUTION: When you use the `scp` command to copy the database backup files to the down server, you may see a warning message about a “man in the middle” attack. This message indicates that the security key that was associated with the down server has changed, and the running server does not recognize the down server’s new security key. The change

to the security key is a normal consequence of the disk replacement process.

To resolve this issue, locate the `known_hosts` file on the running server (`/opt/home/cworks/.ssh/known_hosts`) and perform one of these actions:

- Edit the file, locate the line that contains the IP address of the down server, and replace the old key with the new key.
 - Edit the file, locate the line that contains the IP address of the down server and remove that line.
 - Delete the `known_hosts` file. If you use this method, the next time you try to access any of the other VCX servers using commands such as `scp` or `ssh`, you will be prompted to confirm that you want to trust the target server.
- b** On the down server, restore the IPMSG database. For instructions, see the *IPMSG Operations and System Administration Guide*.



This marks the end of the outage.

Replacing a Disk on an IP Telephony Server

If your VCX system is configured for global messaging, that is, all telephone users obtain IP Messaging services from a regional office, each branch office uses an IP Telephony server.



If this server is configured for RAID operation, see ["RAID Disk Failure"](#), earlier in this appendix.

To replace a failed disk on a branch office IP Telephony Server:

- 1** On the Call Processing Server that is located in the regional office that is associated with this branch office, stop the Tomcat process.



CAUTION: Stopping the Tomcat process on the regional Call Processing Server has these effects:

- Users in the regional office who want to log in to the User Interface must access the Call Processing Server in the other regional office.
 - Administrators in the regional office who want to log in to the Administrator Interface must access the Call Processing Server in the other region.
- a** Log in as root.
 - b** Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat stop
```

- 2 On the Authentication and Directory server in the regional office that is associated with this branch office, drop replication for the database for this branch office.

- a Log in as *cworks*.
- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./dropReplication
```

- c Enter the site ID for the branch office.

- 3 Replace the failed disk on the branch office server.

- a Remove power from the down server.
- b Remove the failed disk.
- c Install the replacement disk.
- d Apply power to the server.
- e Press the start button on the front panel.

- 4 Log in as *root* and configure networking parameters on the down server by entering this command:

```
vcx-config-network --wizard
```

If the down server is the primary VCX server, follow the instructions in [“Configuring an IP Telephony Server at a Branch Office”](#) in [Chapter 3](#).

- 5 If necessary, upgrade the software on the down server to match the software version on other branch office servers.

- a Compare the software version on the down server to the software version on another branch office server.

On the other branch office server and on the down server, enter this command:

```
vcx-showversion
```

- b If the down server is running an earlier software version than the other branch office server, download the appropriate software upgrade file to the `/opt/installtemp` directory on the down server.



The location of the software upgrade file depends on 3Com's service delivery methods and on the customer network configuration.



Software upgrade file names begin with the software version and end in a `.tar` extension (for example: `vcx-all-6.0.2c.tar`). The examples in this section assume that you need to upgrade to VCX 6.0.2c.

- c Install the software upgrade file using these commands:

```
cd /opt/installtemp
tar xvf vcx-softswitch-6.0.2c
cd upgrade-6.0.2c
./install-upgrade
```

- d Switch to the upgraded version of the software using this command:

```
vcx-switchversion --manual 6.0.2c
```

Normally the `vcx-switchversion` command is used with the `--manual` option to downgrade to a previous software version. When you use it in a disk replacement procedure, you can safely ignore this message:

To complete the VCX switchversion operation please restore the IP Messaging and Oracle databases. After these have been restored you may reboot the system.

- e Compare the version of the currently active operating system to the version in the inactive partition, using this command:

```
vcx-os-query
```

In the output from this command, the second column contains the operating system version for the two partitions (A and B) and the last column indicates which partition is currently active.

Example Output From the `vcx-os-query` Command

OS	Version	Partition	Label	Status
A	3.3.0	/dev/sda2	/	active
B	3.3.1	/dev/sda3	/B	

In the example, the active operating system version is 3.3.0 and the version in the inactive partition is 3.3.1.

- f Switch to the more recent version of the operating system using this command:

```
vcx-os-switch 3.3.1
```

- 6 Reboot the down server using this command:

```
reboot
```

- 7 After the reboot process has been completed, configure VCX services on the down server using this command:

```
vcx-setup
```

The script detects that you have already configured the networking parameters for the server and prompts you to configure VCX services.

- 8 After the branch office IP Telephony Server has completed the boot process, configure it using the instructions in [“Configuring an IP Telephony Server at a Branch Office”](#) in [Chapter 3](#).
- 9 On the Authentication and Directory server in the regional office that is associated with this branch office, check replication for the database for this branch office and verify that the status is normal.

- a Log in as *cworks*.

- b Enter these commands:

```
cd /opt/3com/VCX/vcxdata/bin
./checkReplication
```

- c Enter the site ID of the remote regional office or the branch office.

If replication has been completed, you see this message:

```
INFO: Multi-Master Replication STATUS:
*****
*****  NORMAL  *****
*****
```

If you see a different status message, database replication has not yet been completed.

- 10 On the Call Processing Server that is located in the regional office that is associated with this branch office, start the Tomcat process.

- a Log in as *root*.

- b Enter these commands:

```
cd /opt/3com/VCX/scripts/rc3.d
./S70tomcat start
```



This marks the end of the outage.

D

SPECIFICATIONS

This appendix contains physical, environmental, electrical, and configuration specifications for the VCX telephones.

It covers these devices:

- [3Com 3103 Manager Telephone](#)
- [3Com 3102 Business Telephone](#)
- [3Com 2102 Business Telephones](#)
- [3Com 3101 Basic Telephone](#)
- [3Com 2101 Basic Telephone](#)
- [3Com 3105 Attendant Console](#)
- [V6000 Branch Office Solution](#)



WARNING: 3Com Telephones are intended for connection only on internal Local Area Networks. Do not install them outside of buildings. Do not connect them to any networking device outside of the building in which the telephones are located.

3Com 3103
Manager Telephone

The 3Com 3103 Manager Telephone includes a multiline display (320X120 pixels), 12 programmable buttons, 8 dedicated feature buttons, full duplex speaker phone, and a 10/100/1000 Mbps switch port. 3Com 3103 Manager Telephones can accept power from an IEEE 802.3af-compliant (Power over Ethernet) power supply.

Table 30 3Com 3102 Business Telephone Specifications

	FCC Class A device	
Electrical	3C10403A-AA Australia:	240VAC, 50Hz, 13W
	3C10403A-CN China:	220VAC, 50Hz, 13W
	3C10403A-ME Europe:	230VAC, 50Hz, 13W
	3C10403A-SA South Africa:	230VAC, 50Hz, 13W
	3C10403A-UK United Kingdom:	230VAC, 50Hz, 13W
	3C10403A-US North America:	120VAC, 60Hz, 13W
Environmental	Ambient temperature: 0 °C to 40 °C (32 °F to 104 °F)	
	Humidity: 5% to 85% noncondensing	
Weight	1061 gm (2lb 6oz)	
Dimensions	27 x 23 x 11 cm (10.6 x 9.1 x 4.3 in)	

3Com 3102 Business Telephone

The 3Com 3102 Business Telephone includes a 2 x 24 character display, 18 programmable buttons, 8 dedicated feature buttons, and a 10/100 Mbps switch port. 3Com 3102 Business Telephones can accept power from an IEEE 802.3af-compliant (Power over Ethernet) power supply.

Table 31 3Com 3102 Business Telephone Specifications

	FCC Class A device
Electrical	3C10226A-AA Australia: 240VAC, 50Hz, 13W
	3C10226A-CN China: 220VAC, 50Hz, 13W
	3C10226A-ME Europe: 230VAC, 50Hz, 13W
	3C10226A-SA South Africa: 230VAC, 50Hz, 13W
	3C10226A-UK United Kingdom: 230VAC, 50Hz, 13W
	3C10226A-US North America: 120VAC, 60Hz, 13W
Environmental	Ambient temperature: 0 °C to 40 °C (32 °F to 104 °F)
	Humidity: 5% to 85% noncondensing
Weight	1061 gm (2lb 6oz)
Dimensions	27 x 23 x 11 cm (10.6 x 9.1 x 4.3 in)

3Com 2102 Business Telephones

The 3Com 2102 Business Telephone includes a 2 x 24 character display, 18 programmable buttons, 10 dedicated feature buttons, and a 10/100 Mbps switch port. 3Com 2102 series telephones that have “PE” in the part number, for example, 3C10226PE, can accept power from an 802.3af-compliant (Power over Ethernet) power supply.

Table 32 3Com 2102 Business Telephone

	FCC Class A device
Electrical	3C10226A-AA Australia: 240VAC, 50Hz, 13W
	3C10226A-CN China: 220VAC, 50Hz, 13W
	3C10226A-ME Europe: 230VAC, 50Hz, 13W
	3C10226A-SA South Africa: 230VAC, 50Hz, 13W
	3C10226A-UK United Kingdom: 230VAC, 50Hz, 13W
	3C10226A-US North America: 120VAC, 60Hz, 13W
Environmental	Ambient temperature: 0 °C to 40 °C (32 °F to 104 °F)
	Humidity: 5% to 85% noncondensing

**3Com 3101
Basic Telephone**

The 3Com 3101 Basic Telephone includes a 2 x 24 character display, four programmable buttons, and a 10/100 Mbps switch port.

Table 33 3Com 3101 Basic Telephone Specifications

	FCC Class A device
Electrical	3C10410A, 3C10410SPA-AA Australia: 240VAC, 50Hz, 13W
	3C10410A, 3C10410SPA-CN China: 220VAC, 50Hz, 13W
	3C10410A, 3C10410SPA-ME Mainland Europe: 230VAC, 50Hz, 13W
	3C10410A, 3C10410SPA-SA South Africa: 230VAC, 50Hz, 13W
	3C10410A, 3C10410SPA-UK United Kingdom: 230VAC, 50Hz, 13W
	3C10410A, 3C10410SPA-US North America: 120VAC, 60Hz, 13W
Environmental	Ambient temperature: 0 °C to 40 °C (32 °F to 104 °F)
	Humidity: 5% to 85% noncondensing
Weight	870 gm (1lb 15oz)
Dimensions	21 x 22 x 11 cm (8.3 x 8.7 x 4.3 in)

**3Com 2101
Basic Telephone**

The 3Com 2101 Basic Telephone includes a 2 x 24 character display, three programmable buttons, and a 10/100 Mbps switch port.

Table 34 3Com 2101 Basic Telephone Specifications

	FCC Class A device
Electrical	3C10248A-AA Australia: 240VAC, 50Hz, 13W
	3C10248A-CN China: 220VAC, 50Hz, 13W
	3C10248A-ME Mainland Europe: 230VAC, 50Hz, 13W
	3C10248A-SA South Africa: 230VAC, 50Hz, 13W
	3C10248A-UK United Kingdom: 230VAC, 50Hz, 13W
	3C10248A-US North America: 120VAC, 60Hz, 13W
Environmental	Ambient temperature: 0 °C to 40 °C (32 °F to 104 °F)
	Humidity: 5% to 85% noncondensing

**3Com 3105
Attendant Console**

The 3Com 3105 Attendant Console supports up to 100 functions with status LED display (50 buttons, each with high/low shift position). It operates at 10Mbps, in half duplex mode.

Table 35 3Com 3105 Attendant Console Specifications

	FCC Class A device	
Electrical	3C10224-AA Australia:	240VAC, 50Hz, 13W
	3C10224-CN China:	220VAC, 50Hz, 13W
	3C10224-ME Mainland Europe:	230VAC, 50Hz, 13W
	3C10224-SA South Africa:	230VAC, 50Hz, 13W
	3C10224-UK United Kingdom:	230VAC, 50Hz, 13W
	3C10224-US North America:	120VAC, 60Hz, 13W
Environmental	Ambient temperature: 0 °C to 40 °C (32 °F to 104 °F)	
	Humidity: 5% to 85% noncondensing	
Weight	792 gm (1lb 15oz)	
Dimensions	26 x 19 x 8 cm (10.3 x 7.5 x 3.2 in)	

**V6000 Branch
Office Solution**

The 3Com V6000 Branch Office Solution supports the VCX operating system and provides connection points for:

- Analog telephone lines (connecting to the telephone company equipment)
- Analog telephones and fax machines

Table 36 3Com V6000 Branch Office System Specification

	To be supplied
Electrical	To be supplied
Environmental	To be supplied
Weight	To be supplied
Dimensions	To be supplied

E

OBTAINING SUPPORT FOR YOUR 3COM PRODUCTS

3Com offers product registration, case management, and repair services through eSupport.3com.com. You must have a user name and password to access these services, which are described in this appendix.

Register Your Product to Gain Service Benefits

To take advantage of warranty and other service benefits, you must first register your product at:

<http://eSupport.3com.com/>

3Com eSupport services are based on accounts that are created or that you are authorized to access.

Solve Problems Online

3Com offers the following support tool:

- **3Com Knowledgebase** — Helps you to troubleshoot 3Com products. This query-based interactive tool is located at:

<http://knowledgebase.3com.com>

It contains thousands of technical solutions written by 3Com support engineers.

Purchase Extended Warranty and Professional Services

To enhance response times or extend your warranty benefits, you can purchase value-added services such as 24x7 telephone technical support, software upgrades, onsite assistance, or advanced hardware replacement.

Experienced engineers are available to manage your installation with minimal disruption to your network. Expert assessment and implementation services are offered to fill resource gaps and ensure the success of your networking projects. For more information on 3Com Extended Warranty and Professional Services, see:

<http://www.3com.com/>

Contact your authorized 3Com reseller or 3Com for additional product and support information. See the table of access numbers later in this appendix.

Access Software Downloads

You are entitled to *bug fix / maintenance releases* for the version of software that you initially purchased with your 3Com product. To obtain access to this software, you need to register your product and then use the Serial Number as your login. Restricted Software is available at:

<http://eSupport.3com.com/>

To obtain software releases that *follow* the software version that you originally purchased, 3Com recommends that you buy an Express or Guardian contract, a Software Upgrades contract, or an equivalent support contract from 3Com or your reseller. Support contracts that include software upgrades cover feature enhancements, incremental functionality, and bug fixes, but they do not include software that is released by 3Com as a separately ordered product. Separately orderable software releases and licenses are listed in the 3Com Price List and are available for purchase from your 3Com reseller.

Contact Us

3Com offers telephone, internet, and e-mail access to technical support and repair services. To access these services for your region, use the appropriate telephone number, URL, or e-mail address from the table in the next section.

Telephone Technical Support and Repair

To obtain telephone support as part of your warranty and other service benefits, you must first register your product at:

<http://eSupport.3com.com/>

When you contact 3Com for assistance, please have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision level
- Diagnostic error messages
- Details about recent configuration changes, if applicable

To send a product directly to 3Com for repair, you must first obtain a return materials authorization number (RMA). Products sent to 3Com without authorization numbers clearly marked on the outside of the package will be returned to the sender unopened, at the sender's expense. If your product is registered and under warranty, you can obtain an RMA number online at <http://eSupport.3com.com/>. First-time users must apply for a user name and password.

Telephone numbers are correct at the time of publication. Find a current directory of 3Com resources by region at:

<http://csoweb4.3com.com/contactus/>

Country	Telephone Number	Country	Telephone Number
Asia, Pacific Rim — Telephone Technical Support and Repair			
Australia	1 800 678 515	Pakistan	+61 2 9937 5083
Hong Kong	800 933 486	Philippines	1235 61 266 2602 or
India	+61 2 9424 5179 or		1800 1 888 9469
	000800 650 1111	P.R. of China	800 810 3033
Indonesia	001 803 61009	Singapore	800 6161 463
Japan	00531 616 439 or	S. Korea	080 333 3308
	03 3507 5984	Taiwan	00801 611 261
Malaysia	1800 801 777	Thailand	001 800 611 2000
New Zealand	0800 446 398		

You can also obtain support in this region at this e-mail address: apr_technical_support@3com.com

Or request a return material authorization number (RMA) by FAX using this number: +61 2 9937 5048

Country	Telephone Number	Country	Telephone Number
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Europe, Middle East, and Africa — Telephone Technical Support and Repair

From anywhere in these regions, call: +44 (0)1442 435529

From the following countries, call the appropriate number:

Austria	01 7956 7124	Luxembourg	342 0808128
Belgium	070 700 770	Netherlands	0900 777 7737
Denmark	7010 7289	Norway	815 33 047
Finland	01080 2783	Poland	00800 441 1357
France	0825 809 622	Portugal	707 200 123
Germany	01805 404 747	South Africa	0800 995 014
Hungary	06800 12813	Spain	9 021 60455
Ireland	01407 3387	Sweden	07711 14453
Israel	1800 945 3794	Switzerland	08488 50112
Italy	199 161346	U.K.	0870 909 3266

You can also obtain support in this region using this URL: <http://emea.3com.com/support/email.html>

Latin America — Telephone Technical Support and Repair

Antigua	1 800 988 2112	Guatemala	AT&T +800 998 2112
Argentina	0 810 444 3COM	Haiti	57 1 657 0888
Aruba	1 800 998 2112	Honduras	AT&T +800 998 2112
Bahamas	1 800 998 2112	Jamaica	1 800 998 2112
Barbados	1 800 998 2112	Martinique	571 657 0888
Belize	52 5 201 0010	Mexico	01 800 849CARE
Bermuda	1 800 998 2112	Nicaragua	AT&T +800 998 2112
Bonaire	1 800 998 2112	Panama	AT&T +800 998 2112
Brazil	0800 13 3COM	Paraguay	54 11 4894 1888
Cayman	1 800 998 2112	Peru	AT&T +800 998 2112
Chile	AT&T +800 998 2112	Puerto Rico	1 800 998 2112
Colombia	AT&T +800 998 2112	Salvador	AT&T +800 998 2112
Costa Rica	AT&T +800 998 2112	Trinidad and Tobago	1 800 998 2112
Curacao	1 800 998 2112	Uruguay	AT&T +800 998 2112
Ecuador	AT&T +800 998 2112	Venezuela	AT&T +800 998 2112
Dominican Republic	AT&T +800 998 2112	Virgin Islands	57 1 657 0888

You can also obtain support in this region in the following ways:

- Spanish speakers, enter the URL: <http://lat.3com.com/lat/support/form.html>
- Portuguese speakers, enter the URL: <http://lat.3com.com/br/support/form.html>
- English speakers in Latin America, send e-mail to: lat_support_anc@3com.com

US and Canada — Telephone Technical Support and Repair

All locations:	Network Jacks; Wired or Wireless Network Interface Cards:	1 847-262-0070
	All other 3Com products:	1 800 876 3266

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